

Journal of Projective Techniques & Personality Assessment

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Editorial

This is the first issue of the Journal of Projective Techniques & Personality Assessment being printed by the Graphic Arts Center in Portland, Oregon. We would like to welcome to the staff of the Journal a group of new editorial assistants who will be reading proof. Their names are to be found on the title page. We would also like to welcome a new consulting editor, Dr. Robert Davis whose specialty will be the evaluation of foreign manuscripts. It is our hope that bringing the printer and the editorial office closer together will expedite the work and make it possible for authors, reviewers, and consulting editors to communicate more readily with one another.

After having been Executive Editor since the summer of 1965, I find this the most challenging and rewarding activity of my entire professional career. I am especially impressed by the appreciation shown by many authors for the editorial suggestions which I trans-

mit to them. Although the revision of the manuscript might involve a great deal of work including the collection of new data, the use of different methods of evaluating data, or the almost total rewriting of large sections of the paper, they not only seem to be willing to do this, but they actually appreciate the opportunity for improving their product. Also, I have been extremely delighted with the cooperation that I have been able to get from leading psychologists who have served on our editorial staff in various capacities. It makes me feel very proud to be a member of a profession in which busy professional people are willing to devote this amount of time on a voluntary basis to the matter of communicating findings, ideas, and problems to one another in the most clear and concise possible form. I look forward to the future with great enthusiasm.

WALTER G. KLOPFER

Studies of Rorschach Content: A Review of the Research Literature Part 1: Traditional Content Categories¹

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Summary: The results of systematic research study of traditional Rorschach content are reviewed, with a particular emphasis on the following problem areas: population norms, ontogenesis, psychopathology, intellectual and personality characteristics, and situational influences. The yield of this work is then compared with the interpretive statements found in several of the contemporary Rorschach textbooks. It is concluded that no single content category is uniquely indicative of a specific diagnostic category, a personality variable, or a situationally induced factor. The principal value of content variables is seen in the indication that they provide of the nature and adequacy of an individual's relationship to external reality, his social interaction, and his attitude toward his impulse life.

In the more than forty years that have elapsed since the appearance of Rorschach's monograph (Rorschach, 1921), content of responses to Rorschach inkblots has been explored in hundreds of research investigations scattered throughout the psychological and psychiatric literature of many countries. Concurrently, the role of Rorschach content in the total scheme of clinical interpretation has moved from the modest place assigned to it by Rorschach himself to the one of prominence accorded to it in contemporary theory and practice. Authors as diverse as Bohm (1958), Brückner (1957), Endara (1964), Klopfer, Ainsworth, Klopfer and Holt (1954), Loosli-Usteri (1958), Phillips and Smith (1953), and Schafer (1954) have both fostered and reflected an increased emphasis on content in the clinical use of the test.

In the light of this trend, the question as to the yield of the systematic research on Rorschach content may be posed with legitimacy and urgency. We

will address ourselves to this question by examining a major share of the Rorschach research in which content variables have been the object of investigation. To accomplish this purpose, we have organized this review into three interrelated, yet separate papers. In the first, we undertake to present research concerned with the categories of the traditional classification of content, as introduced by Rorschach (1921) himself and as used, with subsidiary elaborations, by the contemporary writers on the test. The second paper will be devoted to the studies that transcend this classificatory scheme and concern themes and symbols gleaned from the Rorschach protocol. Finally, in the third paper of the series we will attempt to integrate the findings summarized in the preceding two papers with the concepts and data that have emerged from the blending of perceptual and personality theory.

A task of this magnitude inevitably poses problems of selection and exclusion. Arbitrarily we have decided to concentrate more heavily on the relevant Rorschach research of the last two decades, and to discuss much of the earlier work sparingly and with the aid of the available secondary sources. Although we have aspired to worldwide coverage, we are well aware that American and English-language sources are

¹ The preparation of this review was supported by the Dementia Praecox Research Project, Worcester State Hospital and by Research Grant M-6369 from the National Institute of Mental Health.

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more systematically represented in this survey than are those in foreign languages. In particular, we regret the sparse and unsystematic inclusion of the Rorschach research of non-Western countries, notably India and Japan. Nonetheless, this article is written with the goal of providing a comprehensive, although not exhaustive, view of the current state of Rorschach content research.

Another problem is posed by the heterogeneous nature of the experimental, methodological, and statistical features of the studies to be reviewed. Our focus, in general, will be on substance rather than method. For practical reasons, it will be impossible for us to pass an explicit and detailed judgment on the merits of all the research to be reviewed. Rather, we will include all studies, whether refined or crude, that may provide findings, even if they be tentative, or may serve as sources of hypotheses, even if these be informal and implicit.

In embarking upon the immediate task before us, that of surveying research uses of traditional Rorschach content, we propose to start out with one of the more mundane, yet neglected areas of study: that of normative research on content variables. The results of these investigations will provide us with a baseline from which we will proceed to survey the developmental, diagnostic, personality-oriented, and situational studies as they pertain to the conventional Rorschach content categories.

Normative Studies

General studies of normal adults. In any personality test, the response of a normal population provides an anchor and a point of departure. Implicitly, this point of view was shared by Rorschach (1921) when he included among the supportive data in his monograph the responses of two normal groups of non-psychiatric subjects. More recent investigators, however, have come to be so absorbed in the dynamic and diagnostic potentialities of the test as to

pay little heed to Rorschach's example. We can point only to a few scattered normative studies that have been completed and to none that would provide a stratified and representative replica of the population at large from which they were drawn.

Despite these limitations, however, the convergence of several trends that emerge from these studies may be worth noting. Investigators in this country (Beck, Rabin, Thiesen, Molish & Thetford, 1950; Brockway, Gleser & Ulett, 1954; Cass & McReynolds, 1951; Neff & Glaser, 1954; Wedemeyer, 1954) as well as in France (Canivet, 1955), Switzerland (Loosli-Usteri, 1952, 1958) and Italy (Rizzo, 1946) are in agreement in reporting population means and/or medians in A% between 38 and 48. A greater degree of variation appears to be present in reference to some of the rarer content categories, but as the populations from which the samples were drawn differed in several characteristics, a direct comparison of these data would be inconclusive and ambiguous. Going beyond these studies, all of which pertain to North America and Western Europe, Hallowell (1956) concluded on the basis of numerous applications of the Rorschach test in non-Western cultures that in virtually all of the normal samples studies, A and H responses contributed close to three fourths of the protocol. It would therefore appear that the representation of these content categories is little influenced by cultural factors.

It should be kept in mind, however, that most of the above conclusions were based on relatively small samples that were selected because of their availability rather than because of their representative characteristics. This general feature of normative Rorschach research is not shared by a series of continuing studies based on the Münsterlingen Archive in Switzerland which serves as the repository of Rorschach protocols collected in that country. A number of studies focussed upon specific content categories have made use of the above archive but the sampling

characteristics of the subjects of these studies could not be adequately assessed on the basis of the secondary writings that were available to us (Kuhn, 1963). Nonetheless, the Münsterlingen Archive research seems to be the most concerted effort to date to provide a normative baseline for Rorschach content, category by category.

Class and sex differences. Within the scope of a single culture, socio-economic and sex differences have occasionally been investigated in relation to Rorschach content. Nonetheless, it remains a curious fact that Rorschach researchers, who as a group have been careful to equate their experimental samples in socioeconomic status, education, or sex, have only rarely addressed themselves to an explicit comparison of Rorschach protocols provided by individuals who differ on any of these variables. Auld's (1952) review lists few such studies and none specifically concerned with content differences. A relatively recent Italian investigation (De Renzi, Isotti & Saraval, 1957) represents the most direct attempt so far undertaken at explicitly ascertaining differences, in content and other variables, among adult subjects at three contrasting levels of schooling: grade school, high school, and university graduates. In this study, education was shown to vary inversely with A% and At%, and directly with H%. Analogous differences across class lines have also been reported in a thorough Japanese normative investigation by Muramatsu (1962). The next step in pursuing this necessary, if long neglected, line of research would be to isolate the effect of IQ difference, if any, on Rorschach content of individuals at different occupational and educational levels and to ascertain the bases of any remaining differences in content. In reference to this problem, Riessman and Miller (1958), in a recent review of issues encountered in testing individuals from different socioeconomic strata, made use of an essentially situational interpretation. They postulated that the impact of a psycho-

logical test session on persons of lower socioeconomic class is more stressful than on those of higher socioeconomic levels. The consequence is an impoverishment of content, along with an increased sterotypy and blandness. Whether this interpretation fully exhausts Rorschach differences along class lines or whether there are deeper sources of these contrasts, reflective of differing "ways of life," or qualitatively different modes of adaptation, is not yet clear.

Whatever their source, content differences were more pronounced in groups contrasted in years of schooling, than were those between individuals differing in age or in sex (De Renzi, Isotti & Saraval, 1958). The latter finding is consonant with the results of other investigators who reported few noteworthy sex differences in content in normal adult groups (Baughman & Guskin, 1958; Loosli-Usteri, 1958; Myers, 1958; Schachter, 1948). The only contrasts that appeared concerned the greater representation of such rare content categories as Blood, Sex, and Cloud in males, and of Clothing in females (Myers, 1958).

Occupational groups. Turning to more specific groupings within the population at large, a sizeable amount of research effort has gone into the study of the content characteristics of individuals in specific occupational groups. The origin of this endeavor can be traced to Rorschach's (1921) own statement that content may provide information about a person's interest in his work. Medical students (Molish, Molish & Thomas, 1950; Rossi & Neuman, 1961); physicians (Dorken, 1954; Schachter, 1948; Hohn, 1959); nurses and laboratory technicians (Rav, 1951) have repeatedly been subjects of Rorschach investigations. With the exception of Rossi and Neuman, all of the above authors noted that these groups tend to produce more At percepts than is true of comparable controls or of the population at large. Within a broader range of occupations, Roe (1952) was able to report

significant content differences among the Rorschach protocols of behavioral, physical, and biological scientists. More importantly, the content categories characteristic of these groups paralleled the objects of their professional interest. Thus, physicists tended to give a higher proportion of Nature responses, biologists stressed Plants and Anatomy, while H perceptions were most prevalent in the records of psychologists and anthropologists, the latter also showing an increased number of Obj. responses. Even more strikingly, French (1959) demonstrated the existence of differences in N, Obj., H, At, Pl, and other categories associated with subsequent occupational choice in a group of individuals who were tested while they were still in college. From other studies comes the evidence that members of highly social professions, such as administrators, have a great many H in their protocols (Rieger, 1949) while individuals in more technical fields, such as engineers, provide few responses in this content category (Courthial, 1956; Rieger, 1949). Also of interest are the findings that, within a single profession, i.e., medicine, research-oriented physicians stand out, compared with clinical practitioners, in the number of At produced (Höhn, 1959) and that interns intending to specialize in psychiatry have more H than the total group of young physicians of which they were members (Dörken, 1954). On the negative side of the ledger, there is the report by Morris (1952) that in a large group of psychology students H did not vary with values of scientific interest in other people's behavior. In the records of artists, moreover, only few responses fell into Art and Design category (Andersen & Munroe, 1948). It is not known, however, what the general population baseline is for this infrequent variety of content.

With a few scattered exceptions, the above results demonstrate the reflection of occupational concerns in the test protocol, as hypothesized by Rorschach. However, certain restrictions on his hypothesis appear necessary. Rorschach's

original statement referred primarily to the degree of vocational involvement, a motivational variable, which cannot be reasonably equated with simple professional affiliation. In most of the above studies, this distinction has not been incorporated in the research design. The author who comes closest to taking motivational effects into account in this area of research is the German psychologist, Höhn (1959), who has contributed a highly sophisticated theoretical discussion of the supposed relationship between vocational variables and projective test content. We will have occasion to refer to her views in the theoretical paper of this series. For the time being it may be appropriate to note that Höhn and her students have gone beyond professional membership and have investigated the relationship of professional prestige to job-related responses. In a group of physicians, she reported a positive association between the degree of eminence and experience and the number of At. Moreover, the same trend appears upon the comparison of other pertinent research reports. Although it is hazardous to extrapolate tendencies from the results of three investigators working in as many different countries, one is struck by the fact that Molish, et al., (1950) and Dörken (1954) whose subjects were medical students and interns respectively, obtained a much lower proportion of At than did Schachter (1948) who worked with independent and established practitioners.

On a more general plane, the relationship between vocation and Rorschach content has not been investigated, nor can it be reasonably expected to apply, at least in its concrete form, to the entire gamut of occupations and professions. Where a physician, a botanist or a geographer, can easily find inkblot configurations which reasonably conform to the objects of his professional occupations, there are many vocations that cannot be directly reflected in Rorschach content. For example, what form of expression does the professional world of the lawyer, secretary, mechanic, or business executive as-

sume in the Rorschach protocol? This is a question which, to the best of our knowledge, has not yet been posed in published Rorschach studies.

Another possible contaminant of many of the above positive findings is traceable to set. The question is open whether the differences reported reflect "occupational personalities" (Rieger, 1949) or whether they are the function of more superficial situational factors which may in particular have been operative in those studies where the subjects were, explicitly, or implicitly, tested as the representatives of their profession. Höhn (1959) provided many clinical illustrations and some research support of the operation of such influences. Moreover, the use of one's occupational identity as a screen against self-revelation on the Rorschach has been noted by clinical authorities on the test, (e.g., Bohm, 1958). Pending the systematic incorporation of set factors into research designs of vocational content studies in the future, the exact weight of occupational interest and identification in determining Rorschach content scores remains unknown.

Developmental Studies

Changes in childhood and adolescence.

The dearth of normative Rorschach studies of adults stands in a strange contrast to the abundance of investigations that compare children and adolescents at several age levels. We will restrict our coverage to the developmental investigations conducted after 1945. For earlier work, the interested reader may consult the excellent surveys by Bohm (1958) and Ford (1946). Within the last twenty years, research on the present topic has been conducted in the United States (Ames, Learned, Métraux and Walker, 1952, 1959; Bosquet & Stanley, 1956; Fiedler & Stone, 1956; Ford, 1946; Hertz, 1960; Setze, Setze, Baldwin, Doyle, Kobler & Kobler, 1957; Swift, 1945; Thetford, Molish & Beck, 1951) as well as in countries as diverse as Algeria (Péchoux & Tocheport, 1956), Canada (McLoed, 1950), Finland (Kiviluoto, 1963), France (Cotte, 1955a, 1955b,

1957), Greece (Routsoni, 1965), Italy (Chiari, 1957), Japan (Kodama, 1958), Mexico (Núñez, 1954), and Switzerland (Gebhardt, 1952). In spite of the diversity in the cultures from which the above samples have been drawn and in the socioeconomic, intellectual, educational, and age composition of the groups compared, a small number of general trends emerge from this heterogeneous spectrum of investigations. With few exceptions (e.g., Chiari, 1957; Routsoni, 1965) the above authors agree that the number and percentage of human content (H & Hd) increase with age, although the nature and the extent of this progression are a matter of controversy. A similar progression is observed for At which has been noted to increase especially upon the approach or onset of puberty (Hertz, 1960; Péchoux & Tocheport, 1956). There is convergence in the findings of several investigators (Ames, et al., 1952; Kiviluoto, 1963; Schachter & Cotte, 1955a, 1955b) that P1 responses decrease with age, particularly during the pre-school years.

More controversial are the age changes in the frequency and proportion of A. Reports are extant that point to a decrease of the above content characteristic with age (Bosquet & Stanley, 1956; Swift, 1945), its increase, especially in populations of young children (Cotte, 1955b; Kiviluoto, 1963; Schachter & Cotte, 1955a), a non-linear, erratic trend (Ames, et al., 1952; Setze, et al., 1957), and no appreciable change (Chiari, 1957; Gebhardt, 1952; Péchoux & Tocheport, 1956; Routsoni, 1965; Schachter & Cotte, 1957; Thetford, et al., 1951). Thus a blanket use of A% as a potential indicator of personality maturity does not appear to be supported by the inconclusive character of the developmental evidence presented here.

In view of the lavish effort expended in studying age trends among children and adolescents, it is a curious fact that the records of adults and children have only rarely been contrasted and compared. A number of Swiss investigators in a continuing series of

studies under the aegis of Kuhn (1963), which have already been mentioned in another context, do report data on the frequencies of several content categories in large groups of children, adolescents, and adults. According to these findings, some of which were available to the present authors only through secondary sources (Kuhn, 1963), the percentage of At and Ad is higher in adults than in children, while the reverse is the case for Blood (Künzler, 1963). An increased incidence of Geo. among preadolescent school children, compared with adults, was noted by Pêchoux and Escafit (1948) and may represent a direct reflection of school activity concerned with geography and maps. No systematic investigations appear to have been undertaken on the frequency of H responses in samples of adults and children. This omission is unfortunate in view of the significance frequently attributed to this category as a supposed indicator of emotional, social, and cognitive maturity. Closest in theme to this problem is the French study by Pêchoux and Tocheport (1956) who contrasted preadolescent and adolescent boys and found more H in the latter group.

All of the above results on the content correlates of chronological growth were based on cross-sectional, rather than longitudinal, studies. The number of longitudinal investigations is considerably smaller (Ames, 1960a, 1960b; Johannesssen, 1965; Ledwith, 1959; McFate & Orr, 1949; Paulsen, 1954). These authors' findings parallel those of cross-sectional investigators; H showed a slow increase with age, the number and/or proportion of Pl diminished, and detail responses, Hd and Ad, were found to experience a slow rise. A feature characteristic of the results of longitudinal research is the increase in the proportion of A upon repeated test administration. More generally, there seems to be a trend toward constriction and impoverishment of content in the course of periodic re-examinations.

In passing, it may be noted that both variants of developmental study, the

longitudinal and the cross-sectional, need not be restricted to the task of mapping age trends. A byproduct of some of the projects reviewed has been information on sex or socioeconomic differences in several age groups. Content differences between boys and girls appear as early as preschool years and take the form of higher H in girls and higher At in boys (Stavrianos, 1942). The above trends hold, with some fluctuation, through childhood and into adolescence (Ames, et al. 1959; Cotte, 1956, 1958; Schachter & Cotte, 1957). It is somewhat paradoxical that sex differences in children and adolescents are more pronounced than in adults. As far as socioeconomic class is concerned, the few studies that take this variable into account (Carlson, 1952; Fiedler & Stone, 1956) yield results which parallel similar studies of adults; the greater proportion of A in the records of lower class children appears to be the most important finding.

Changes with aging. Ames, Learned, Métraux, and Walker (1954) have reviewed earlier work on this topic and have observed that most of the older investigations were limited to the most frequent variety of content, i.e., A or A%. By contrast, in their own study the above authors included data on the entire range of Rorschach content. They noted a gradual increase of both A% and H% and further observed that changes in other content categories, e.g., At were dependent upon an interaction of socioeconomic status and age. The same trends have been corroborated in a longitudinal study of aged subjects (Ames, 1960c) and, as far as increase of A% is concerned, in a few cross-sectional studies (Davidson & Kruglov, 1952; Light & Amick, 1956). More generally, the above results suggest the conclusion that content changes incident to aging do not clearly correspond to the trends found upon the comparisons of maturing children.

Studies of Psychopathology

One of the major uses of the Ror-

schach test has been that of diagnostic differentiation. Not surprisingly, therefore, a sizeable effort has been given to attempts at isolating the characteristic Rorschach score patterns, including content, of major psychodiagnostic groups. We will review the available findings and will first address ourselves to the studies concerned with the Rorschach content characteristics of major nosological categories, e.g., schizophrenia, neurosis and sociopathic behavior. We will then proceed, in separate sections, to survey the signs and patterns associated with the more circumscribed psychiatric syndromes, e.g., catatonic schizophrenia or obsessive compulsive neurosis, the various psychophysiological conditions, e.g., duodenal ulcer or bronchial asthma, and the several maladaptive states defined on the basis of specific symptoms or behaviors, e.g., alcoholism, suicidal potential, or enuresis.

Broad diagnostic categories. Within the framework of diagnostically oriented research, studies of schizophrenia are, numerically, the most prominent. In the light of the accumulated findings, the value of A% or A as an indicator associated with schizophrenia remains contested and controversial. There are studies that report an increase (Yen-Yi-Shiu, 1963), a decrease (Asthana, 1963; De Renzi, 1955; Kumar, 1961; Thiesen, 1952), or no difference (Armitage & Pearl, 1957; Beck, 1954; Berkowitz & Levine, 1953; Broadway & Heisler, 1953; Buhler, Buhler & Lefever, 1949; Duran, Pechoux, Escafit & Davidou, 1949) in these scores in schizophrenic samples, compared with normal or neurotic control groups, or with population baselines. As far as H is concerned, several investigators (Armitage & Pearl, 1957; Broadway & Heisler, 1953) failed to find differences between schizophrenic and non-psychotic samples. That these results may in part have been dependent on the differences in R between schizophrenics and normals is attested by the earlier investigation by Sherman (1952) who found that H differentiated only those groups of normals and schizophre-

nics whose productivity was low. Number of H was, moreover, found useful in contrasting neurotic and ambulatory schizophrenic samples (Rieman, 1953). There is furthermore some evidence of a higher proportion of Hd and Ad responses in schizophrenic than in normals (Sherman, 1952; Vinson, 1960). Manifestly "transparent" content in the categories of At, Blood, and Sex has been variously encountered with significant increases in frequency in studies of schizophrenic patients (Beck, 1954; Duran, et al, 1949; Hwang Cheng-Jen, 1966; Knopf, 1956; Orme, 1962; Thiesen, 1952; Taulbee & Sisson, 1954; Tschudin, 1943; Vinson, 1960), but even here there are a few discordant voices reporting negative results (Buhler, et al., 1949; Rubin & Lonstein, 1953; Sherman, 1952).

Going beyond the above findings which pertain to differences between schizophrenic and normal adults, Duran, et al., (1949) explicitly sought to establish parallel trends in the protocols of adult schizophrenics and normal children. They were only partially successful in their quest; although they did report that the content profiles of schizophrenics resembled more those of children than of adults. More specifically, At and Sex were more prevalent in the schizophrenic than in either of the normal groups while the schizophrenics' A% was lower than that of children and their H, lower than that of adults. The general conclusion from this study would appear to be that the content characteristics of schizophrenics' Rorschach protocols cannot be simply described in terms of a return to an earlier, infantile mode of adaptation.

Moreover, the rather fragmentary evidence available (Beck, 1954; Viitamäki, 1964) on the Rorschach content of childhood schizophrenia suggests that there is less than perfect correspondence between the characteristic content patterns of schizophrenic adults and children. A% (Beck, 1954) and H (Viitamäki, 1964) have been reported to be lowered in schizophrenic children compared with normal controls but At, which in the studies of adults had emerged as one

of the most consistent indicators of schizophrenia, failed to differentiate groups of normal and schizophrenic children, at least in one study (Beck, 1954).

Turning from clinical pathology to its alleged dynamic antecedents, two studies have been devoted to the exploration of the Rorschach protocols of mothers of schizophrenic patients. The results of this search have, so far, been barren (Prout & White; Viitamäki, 1958). In the pursuit of a different research strategy, Rorschach records of institution-reared subjects were compared with those of individuals who grew up in a family environment. Early research on this topic (Goldfarb, 1949) was limited to comparisons of A% and produced equivocal results. In a recent study, Horn, Bona and Tarkovass (1966) examined the entire spectrum of content categories and demonstrated several significant differences between the above two kinds of populations. In particular, institution-reared subjects differed from foster home controls in showing more N, Arch, and Hd as well as less Obj. and H in their protocols.

In reference to depression, there has been a more general agreement with the view, first expressed in Rorschach's (1921) monograph, that the restrictive effect, characteristic of this kind of psychopathology, is manifested in an elevated A% and an increased proportion of Hd in relation to H. In reference to the former index, Kobler and Stiel (1953) summarized several pertinent studies that support Rorschach's contention. Moreover, the investigation by Buhler, et al. (1949), which encompassed a wide range of diagnostic categories, yielded the result that A% reached its highest level in a group of melancholic patients and set them apart, at an acceptable level of significance, not only from normals, but from schizophrenics, manics, and several neurotic samples as well. More recently, association of high A% with depression has been demonstrated by Kottenhoff (1964). As far as overrepresentation of Hd is concerned, the accumulated findings, as reviewed by Kobler

and Stiel (1953) are again, confirmatory of Rorschach's expectations. Among other content categories, Geo. and Obj. have been found to be sparse in the protocols of depressed patients (Kuhn, 1963).

In addition to the above results all of which were based on a comparison of depressed and non-depressed subjects, two French studies (De Beaudoin, 1954; Péchoux, Gerard & Le Mée, 1956) contrasted the content patterns of the same individuals tested during and after a clinically depressed state. Péchoux, et al. stress the low H% in depression, and its increase upon the disappearance of dysphoric symptomatology. De Beaudoin (1954), on the other hand, noted major changes in the themes and style of Rorschach protocols which were not reflected in the frequencies of several traditional content categories.

The findings on manic patients stand in sharp contrast to those obtained with depressed patients. A% in mania has been found to be low (Kuhn, 1963; Saraval, 1960; Schmidt & Fonda, 1954), Obj. overrepresented (Kuhn, 1963) and Sex (Saraval, 1960) high. The question now arises as to the changes in the Rorschach content of those individuals who experience both manic and depressive phases. As far as we know, there are no studies extant that have longitudinally explored Rorschach changes from mania to depression, or vice versa.

Addressing themselves to more global issues of diagnostic differentiation, Armitage and Pearl (1957) compared four groups (paranoid schizophrenics, "unclassified" schizophrenics, neurotics, and character disorders) on a wide range of traditional and thematic content indicators and reported essentially negative results. Similar conclusions were drawn by Bradway and Heisler (1953) who, in their own words, "approached the problem from the other direction." They asked the question: "In a neuropsychiatric setting, given a group of Rorschachs that are alike in certain extreme or so-called 'pathological' respects, what diagnostic category is most common?" (Bradway &

Heisler, 1953, p. 72). They reported that most of the content categories, even including manifestly pathological ones, are distributed over most of the diagnostic categories. The one significant finding that is relevant in the present context concerned the significantly increased incidence of sex responses in psychopaths. In a general sense this result parallels the more recent findings of the Austrian psychologist, Kohlmann (1962), who reported few differences between psychopaths and neurotics in traditional content classifications, but a marked tendency on the part of the former group to provide impulse related, aggressive or sexual, responses. The more traditional indices allegedly associated with psychopathy, such as a higher proportion of Hd and Ad over H or A, failed to be confirmed by Lindner (1943) and by the more recent investigators.

More optimistic conclusions as to the use of content for global diagnostic differentiation were reached in an early study by Schmidt (1945) who, using a rather lenient standard of statistical significance reported H and Hd to be relatively high in cases of adult maladjustment, Ad, Hd, and At to be associated with neurosis and Ad and At characteristic of psychosis. In a more recent and conclusive study, Knopf (1956) succeeded in demonstrating, upon crossvalidation, the differentiating value of At and Sex in a sample composed of neurotics, schizophrenics, and psychopaths. The above author cautioned, however, that the above index did not hold up in all the binary comparisons of the above three groups.

Specific syndromes. Again, by far the largest group of studies in this area have been concerned with differentiation of content patterns of several schizophrenic groups. Within the framework of Kraepelinian classification, Rapaport, Gill and Schafer (1946) endeavored to isolate the content characteristics of simple and paranoid schizophrenics and compared them with a number of other, neurotic, psychotic,

and normal, groups. According to these authors, A and At are particularly high in simple schizophrenia while paranoid and unclassified schizophrenics have a relatively high H% and low A%. The above research has been severely criticized for the leniency and inappropriateness of its statistical standards by Cronbach (1949). Whatever its methodological merits or deficiencies, however, the trend of the findings by Rapaport, et al. is basically in keeping with those of the earlier Swiss study by Tschudin (1943) and the more recent work by De Renzi (1955) in Italy and Yen-Yi-Shiu (1963, 1964) in Taiwan. Thus, there seems to be a degree of consistency to these findings that holds up across space and time. In reference to other varieties of schizophrenia, De Renzi (1955) found that a low H and a high At set hebephrenics apart from schizophrenic patients in other diagnostic sub-categories, as well as from normal controls. In reference to the more general variables of chronicity and deterioration, the available findings (Rapaport, et al., 1946) point to a decrease of both H and A and an increase in At at the advanced stages of the schizophrenic process.

The empirical study of content characteristic of specific neurotic syndromes has, by contrast, been both sparse and scattered. Early suggestions of an emphasis on At, Pl, and Obj. in the records of obsessive compulsive neurotics (Goldfarb, 1943) were based on the comparison of their protocols with those of a rather roughly matched control group. In any case, the more recent normative studies of the same syndrome (Kailä, 1949; Müller, 1953) do not bear out these tentative trends. It should be kept in mind, however, that in the latter two studies comparisons were made with published population norms, rather than with specific control groups. The investigations of several neurotic syndromes undertaken by Buhler, et al. (1949) and by De Renzi (1956) were limited to the most frequent content categories (A% in the former case, A%, H%, and At% in the latter) and yielded

uniformly negative results. The positive finding by Rapaport, et al. (1946) that H is significantly higher in obsessive-compulsive neurosis than in hysteria stands alone and awaits cross-validation.

Turning to other diagnostic categories, Zolliker (1943) reported a strikingly high number of At in women suffering from psychiatric complications due to pregnancy. The above score differentiated these patients from normal and neurotic controls, both before and after childbirth. The incidence of At in hypochondriasis, on the other hand yields an equivocal picture. Thus, Rav (1951) found no pattern of association between At and other alleged Rorschach indices of hypochondriasis. Weiss and Winnik (1963) were unable to establish any relationship between the occurrence of At and the diagnosis of hypochondriasis. On the positive side, there is the earlier result (Rapaport, et al. 1946) on the related and overlapping diagnostic category of neurasthenia which was found to be characterized by a disproportionate occurrence of At responses.

In the rich and controversial literature on the Rorschach indicators of organicity and epilepsy content characteristics have been traditionally outside the focus of the investigators' attention. Nonetheless, there are a few studies in which the contents of organic and non-organic, or epileptic and non-epileptic subjects were compared. That this is not an altogether hopeless enterprise is illustrated by the uncommonly thorough and well-designed study of Spreen (1956), who was able not only to demonstrate content correlates of brain injury, but also to indicate specific content characteristics associated with frontal, dorsal, and basal lesions. A detailed consideration of this complex pattern of differences goes beyond the scope of this review; it should be mentioned, however, that A, H, (H), and Obj. were among the scores that yielded significant differences. On a less ambitious scale, the early comparative study by Werner (1945) of brain injured mental defectives and those di-

agnosed as "endogeneous or familial type of mental deficiency" resulted in the finding that the brain-injured gave more H. Orme (1955) was able to demonstrate increased incidence of Obj., and a lowering of At in senile subjects who were compared with elderly depressives. Schachter (1958) investigated the Rorschach content indices of Parkinsonian patients and concluded that, as compared with a non-organic control group, their At and Sex responses were unusually high. Somewhat parallel findings in reference to the increase in the number of proportion of At, were reported in several early studies concerned with epilepsy, which are reviewed by Delay, Pichot, Lampérière and Perse (1958), as well as in the more recent research by Höhn (1959) and Kikuchi (1960). Moreover, there is one study (von Brunn & von Brunn, 1950) that suggests that the frequency of At within epileptic groups is proportionate to the presence and severity of psychotic symptomatology. In the light of the above results we are confronted with a paradox; content criteria appear to have relatively little demonstrated usefulness in differentiating the varieties of functional psychopathology, an area in which they have repeatedly been studied; they seem to hold a degree of promise in reference to organic impairment where their contribution has been slighted or dismissed. Whether this impression is upheld upon a more intensive study of organic syndromes remains to be seen; for the moment, however, we are faced with an array of positive findings pertaining to a variety of psychopathology, where, a priori, we would least expect to uncover them.

Psychophysiological conditions. Content correlates have also been sought for a number of states of physical dysfunction whose origins, in the psychodynamic view, are traced to specific intrapsychic conflicts and whose occurrence in adults is often presumed to be associated with a particular constellation of personality characteristics. One

of the most promising findings in this area was contributed by Shatin (1952) who found that a psychosomatic group exceeded in the number of At a closely matched sample of neurotics who were free of such symptomatology. Attempts focussed on the delineation of content indicators of specific psychosomatic syndromes have often been less successful. Negative findings upon comparisons with normal controls, have been reported for atopic dermatitis (Rabin & Kepecs, 1954), coronary artery disease (Miles, Waldfogel, Barrabee & Cobb, 1954), and essential hypertension (Rausch de Traubenberg, Javal & Rivenq, 1963). An isolated report by Seward, Morrison & Fest (1951) pointed to an elevated A% and a preponderance of A and H responses over Hd and Ad in a sample of patients suffering from ulcerative colitis. Moreover, there have been scattered findings pointing to a greater proportion of A in cases of breast tumors, compared with those of tumor of the cervix (Tarlau & Smalheiser, 1951), and a prevalence of both A and At in patients suffering from arterial hypertension, compared with a mixed group of arthritic and Parkinsonian individuals (Booth, 1948). More consistent are the results of several groups of investigators who found increased A% in cases of duodenal ulcer (Brown, Bresnehan, Chalke, Peters, Poser & Tougas, 1950; Brown, Chalke, Peters, Poser & Quarrington, 1951; Franco & Alszraki, 1953; Kaldegg & O'Neil, 1950, Osborne & Sanders, 1950; Poser, 1951), accompanied, in some of the research samples tested, by a lowering of H (Kaldegg & O'Neil, 1950), or an emphasis on At (Brown, et al. 1950). Although overrepresentation of A in duodenal ulcer has been consistently reported, this tendency has not been so pronounced as to differentiate these patients from those afflicted with other psychosomatic ailments, such as migraine headaches (Kaldegg, 1952). In peptic ulcer, the content characteristics that have emerged from two studies (Katz, 1954; Hojer-Pedersen, 1958) are less well delineated; there appears to be no increase

of A% or lowering in H. The only possible differentiator is the greater proportion of Hd and Ad in relation to A and H in the peptic ulcer group compared with non-psychosomatic controls (Katz, 1954).

On a more general issue, that of the nature of Rorschach content concomitants of recovery from physical illness, two of the pertinent studies (Harris & Christiansen, 1946; Cohen, 1954) yielded entirely negative results. The research by Levi (1951) did produce the finding that the predominance of At responses (i.e., this category contributing more than 60% of the total response number) was predictive of a delayed and complicated course of rehabilitation in a sample of patients suffering from various physical handicaps.

On the fringes of psychosomatic research is the study by Kotkov and Murawski (1952) who found high A% and Pl and low H, as well as Cloud and Recreation responses among the differentiating features of a sample of obese women. It is of interest to note the contrasts between this group and the samples of patients with the presenting symptom of anorexia nervosa who, according to Hiltmann (1963), exceeded a neurotic control group in the number of H + Hd, Sex, and "unusual clothing" responses. These findings are in part parallel to those obtained in a more clinical and qualitative study by Palazzoli Selvini (1963) who, however, stressed the variability of several content indices (A%, H, Hd, At, Fire, and Blood) within a sample of anorexic women.

Finally, we may proceed to the presentation of a few sporadic findings that pertain not to the psychosomatic syndromes in the narrow sense of the word, but refer to the Rorschach reflection of the individual's response to the stress brought on by major debilitating illness. Content characteristics associated with such states have been studied by Argenta and Rizzo (1963) and Lord (1954) in the case of leprosy and by Melzer (1950), Péchoux and Defayolle (1950), and Samale (1954) in

the case of tuberculosis. In the former condition, the lowering of H was noted in both of the research reports. Somewhat more surprisingly, however, this finding was not accompanied by an increase of At. In reference to tuberculosis, the results are more heterogeneous, although they appear to be more complementary than contradictory; Péchoux and Defayolle (1950) stressed the frequent presence of "Rock" and "Cloud" responses in their tubercular sample while both Samale (1954) and Melzer (1950) emphasized the enhanced occurrence of At, which Péchoux and Defayolle found to be increased only in the cases of patients with depressive ideation and a pessimistic outlook.

Symptom states. Under this heading, we will present studies that concern the Rorschach content of individuals whose behavior has been defined on the basis of specific, socially or individually maladaptive, acts or characteristics. Search for the content correlates of these states has been sparked by the widely shared belief that individuals sharing these symptomatic behaviors are characterized by a specific pattern of personality traits.

Proceeding from this premise, several investigators have endeavored to find the characteristic content features of alcoholics. Buhler and Lefever (1947) stressed the high A% of their alcoholic sample and a number of investigators (Billig & Sullivan, 1942, 1943; Shere, Lasser & Gottesfeld, 1953) focussed in their reports on the increased occurrence of At responses, which, Shere, et al. (1953) concluded, place alcoholics midway between normals and schizophrenics. Paucity and poor quality of H was noted as a distinguishing characteristic of immoderate drinkers of above average intelligence and education in England (Bathurst, 1959). However, as this finding has not been observed by the other students of alcoholics' Rorschach content, it must be concluded that H has little value in differentiating more representative samples of alcoholics from their non-alco-

holic peers who share the same socioeconomic and educational characteristics. That the other characteristics enumerated do not hold up for all samples of alcoholics is also attested by Button (1956) who found Rorschach content to be of little use in distinguishing chronic inebriates.

Turning from addictive states to self-directed aggressive behavior, Kohlmann and Stepan (1955) reported essentially negative results in their study of survivors of suicidal attempts. Durand de Bousingen and Wernert (1959) were, however, able to differentiate depressed patients with suicidal preoccupations from depressed individuals without such ideation by the greater frequency of Pl, Rock, and "Statue and Monument," i.e. (H) responses in the former group. Among preadolescents with a history of suicidal attempt, H and At were found to be elevated beyond expectancy for their age groups by Schachter & Cotte (1963). One of the above authors (Schachter, 1957) was also able to corroborate the increased incidence of At in an adult sample of depressed patients with current suicidal thoughts and the history of at least one suicidal attempt. It may be seen that the populations employed by the several investigators differ in terms of their defining characteristics in suicidal behavior or suicidal ideation, as well as in diagnosis and age. It is therefore not surprising that the above findings appear to be scattered and fail to provide a coherent and general trend.

Within groups characterized by externalized aggression, De Beaudoine, Haumonte, Bessing and Geisman (1961), whose research sample consisted of psychiatrically hospitalized murderers, noted a low number of H accompanied by relative elevation in the numbers of (H) and Blood responses. The latter finding was corroborated in a painstaking normative tally of Blood responses (Künzler, 1963). Dearth of H has also been reported in a variety of antisocial populations ranging from adult criminals (Endara, 1957; Geil, 1945; Walters, 1953) through juvenile delinquents (Ray,

1963; Richardson, 1963) to preadolescent behavior disorders (Robbertse, 1955). Beyond these general results, Endara (1957) was able to establish that the decrease of these responses was roughly proportionate to the severity of the offense; fewer H were given by individuals imprisoned for murder than by those convicted of sexual assault or of robbery. Moreover, first offenders had a higher mean of H responses than did recidivists. Within the area of juvenile delinquency, Canestrari and Battachi (1963) in Italy focussed upon the Rorschach scores associated with specific personality patterns. Contrasting "immature," but anxiety-free delinquents with anxious and neurotic ones, they found a greater representation of H, At, Blood and Explosion in the latter subgroups. With a different and somewhat more detailed breakdown of a delinquent population, compatible findings were reported by Oberle and Fagherazzi (1963) in France. Still studying antisocial, although not primarily aggressive behavior, Schachter and Cotte (1951) and Zolliker (1951) presented normative data on a sizeable number of apprehended prostitutes and arrested sexual offenders, respectively. In both of the above groups, At were considerably augmented. These findings are complemented by those of the Brazilian investigator, de Aguiar Whitaker (1947), who, working with a rather heterogeneous aggregate of sexual deviates, found Sex responses to be markedly overrepresented in that sample.

Finally, there are a few studies of enuretics (Brückner, 1957; Schachter & Cotte, 1950b), of stutterers (Meltzer, 1944; Speidel, 1963), and an isolated one of nail-biters (Schachter & Cotte, 1954). Enuretic children have variously been reported to be high in At and Hd (Brückner, 1957) or in Pl and Obj. (Schachter & Cotte, 1950b) while the profile of stutterers displayed stereotypy, in the form of heightened A% (Meltzer, 1944) or a bland and conventional character, exemplified by Obj. and Pl (Speidel, 1963).

Prognosis and improvement. We now embark upon the consideration of the group of studies that are pertinent to criteria associated with, or predictive of, clinical progress in psychiatric populations. Although these studies differ in their emphasis upon a predictive or an outcome orientation and, moreover, range widely in groups studied, indices chosen, and treatments applied, a few trends of a promising degree of generality may be extracted from this heterogeneous spectrum of findings. Thus, H has repeatedly emerged as a significant predictor of a favorable response to general hospital or ambulatory treatment, as well as to somatic intervention in groups as varied as schizophrenics (Goldman, 1960; Halpern, 1940; Morris, 1943; Piotrowski & Bicklin, 1961; Stotsky, 1952; Wernert & Durand de Bousingen, 1963), neurotics (Dickson, 1949), and "problem children" (Siegel, 1945). Parallel to these results are the findings of those investigators who noted an increase of H after psychotherapy (Jonietz, 1950), its decrease concomitant with clinical deterioration in psychotics (Rickers - Ovsiankina, 1954; Stotsky, 1952), as well as a positive association of the above score with motivation for, or length of stay, in psychotherapy (Affleck & Mednick, 1959; Gibby, Stotsky, Miller, & Hiller, 1953). In a related and more specific area, however, that of prediction of a favorable outcome of psychotherapy, negative findings in reference to the predictive value of H have been repeatedly reported (Grauer, 1953; Roberts, 1954; Rogers, Knauss, & Hammond, 1951; Rogers & Hammond, 1953).

The composite portrait of findings becomes even more complex as we shift to A%. Apparently, the above score is associated with clinical gains in hospitalized psychiatric populations when concrete and mundane criteria of improvement are used, such as ward adjustment or discharge (Kammerer, Singer, & Durand de Bousingen, 1956; Zamansky & Goldman, 1960). When, however, non-psychotic, non-hospitalized samples are investigated and their re-

sponse to therapy is assessed in terms of subtler indicators, e.g., insight or self-understanding, the relationship between A% and outcome measures tends to be negative (Bloom, 1956; Davids & Talmadge, 1963, 1964; Salfeld, 1950, 1951). Moreover, A% has been shown to vary inversely with readiness to begin or to pursue psychotherapy (Gibby, et al. 1953), yet a low proportion of A has been tentatively demonstrated to be of value in predicting hospitalization of psychiatric outpatients (Peterson, 1954).

The fragmentary findings pertinent to At and Sex also point to the complexities of mapping a relationship between therapy and content variables. The number of Sex responses has been shown to increase upon the completion of psychotherapy (Jonietz, 1950) and the presence of both At and Sex, though not their frequency, has been noted in association with the tendency to remain in psychotherapy longer than five sessions (Gibby, et al. 1953). These indications, as well as the preceding ones, have to be considered tentative, as there are research reports which failed to uncover the reflection of treatment effects in any of the Rorschach content scores (Rogers, et al. 1951; Rogers & Hammond, 1953; Roberts, 1954).

Psychological Processes

Research reviewed so far has for the most part dealt with mutually exclusive, qualitative categories of behavior in relation to the several Rorschach content indices. Our attention now turns to the consideration of the rather modest body of data that pertains to the correlates of dimensional psychological variables. These findings will be presented under the two headings of intelligence and personality.

Intelligence. Rorschach (1921) noted that high A% tended to indicate low intelligence. Surprisingly, there has been little systematic research directly pertinent to this assertion. Early, and inconclusive, work on this alleged relationship has been reviewed by Spiegelman (1956). Since then, there has ap-

peared one report of positive results (Wysocki, 1957) and three adding to the store of negative findings (Mauss, as cited by Michel, 1961; Miels, 1966; Sommer, 1957). The conclusions of the above three investigators who, for the most part, were concerned with adult or late adolescent subjects, are paralleled by the yield of earlier work with children (Ford, 1946; Gebhardt, 1952; Schachter & Cotte, 1953); absolute frequencies, as well as percentages of A were found to yield a negligible association with either I.Q. or M.A. With one exception, however, (Gebhardt, 1952) these results exclusively pertain to individuals who are functioning within the normal range of intelligence. Rorschach's hypothesis, as originally formulated, encompassed mental retardation as well. It is still possible that expanding the range of populations studied to several levels of mental defect might result in at least a partial support for Rorschach's statement. Early exploratory work by Beck (1932) suggests that this line of investigation may be fruitful to pursue.

Moreover, A% may be linked to aspects of cognitive functioning that are not customarily reflected in I.Q. scores or M.A. levels. Thus, an overemphasis on A may bespeak an impairment of emotional foundations for the efficient utilization of intellectual resources. Scattered support for this view comes from a number of investigators who have found high A% associated with low ratings of promotion potential (Dulsky & Crout, 1950) or efficiency (Kottenhoff, 1964) in an industrial milieu and with scholastic underachievement in college (Rust & Ryan, 1953; Steinzor, 1944) or public school (Margulies, 1942). The impression that emerges from these studies is that of ineffectuality of high A scorers in demonstrating their intelligence in competitive, social settings. The complex nature of the interaction of intelligence, personality, and A% is highlighted by Kottenhoff (1964) who was able to demonstrate a negative correlation between A% and intelligence, but only after partialling out

the association between depression and A%.

Going beyond A%, one is struck by the low number and limited variety of studies that refer to intellectual correlates of other Rorschach content scores. The only index that has been studied with any frequency is that of "content diversity" which, of course, is both conceptually and empirically related to A%. Therefore, it is not surprising that studies of this variable have been similarly inconclusive. Klopfer, Allen and Etter (1960) found that range of content was not related to either the variety of interests, as gleaned from the Strong Interest Inventory, or intelligence, as assessed by standard tests. Positive data concerning the relationship between the number of content categories and intelligence measures have been reported by Ford (1946) who worked with children and by Pauker (1963) who tested a group of adult psychiatric patients more heterogeneous in intelligence than were the subjects of Klopfer, et al. (1960). Moreover, content variety has been found to be related to Wechsler-Bellevue information subtest scores in one study (Holzberg & Belmont, 1952).

Only scattered indications are available in reference to the intellectual correlates of other Rorschach content scores. Thus, the seemingly plausible relationship between H and intelligence appears only in the form of a few promising, if inconclusive leads from the studies of children (Gebhardt, 1952; Schachter & Cotte, 1953) as well as an isolated recent report on adults (Mields, 1966) and Ford's (1946) finding of a correlation of Obj. with the Stanford-Binet I.Q. so far stands alone.

Personality characteristics. We now turn to the much more heterogeneous accumulation of findings pertinent to a diverse list of personality variables. Early work in this area focussed upon the clinical ratings of such global and theoretical constructs as "adjustment" and "impulsivity." In reference to A%, it was found that this index varied in-

versely with both of the above personality variables (Rapaport, et al. 1946; Gardner, 1951; Barry, Blyth & Albrecht, 1952). H, on the other hand, was found to be more prominently represented in the records of normal subjects of superior adjustment (Rapaport, et al. 1946; Barry, et al. 1952). There is moreover one report that succeeded in demonstrating a larger proportion of H to Hd in well adjusted individuals (Barry, et al. 1952). This finding is paralleled by the observation of the French psychologist (Beizmann, 1957) of the increased incidence of Ad and Hd in samples of maladjusted children, as well as groups of subjects generally characterized by social handicap or internal tension, such as deaf mute children or normal adolescents. On the negative side, Eschenbach and Borgatta (1955) were consistently unsuccessful in attempting to isolate content correlates of ratings of a wide variety of social behaviors.

The variable of anxiety, though pivotal to a number of clinical and personality formulations, has received little attention at the hands of students of traditional Rorschach content. This is all the more surprising as Rorschach (1921) himself explicitly postulated a relationship between anxiety and a high number of Hd in relation to H. More recent writers (Eichler, 1951; Violet-Conil & Canivet, 1952) presented more elaborate arrays of signs which, on the basis of clinical experience and expert opinion, should differentiate anxious and non-anxious individuals. These lists include beside $H < Hd$, At , $A < Ad$, and increased A%. The few available research studies pertain to experimentally induced analogue states of fear or anxiety (Cox & Sarason, 1954; Eichler, 1951; Levitt & Grosz, 1960) which produced uniformly negative results. The yield of the few studies pertinent to the real-life criteria of anxiety in the form of questionnaire measures (Cox & Sarason, 1954; Wagner, 1961) is little more positive; the only noteworthy finding that stands out is the association between the anxiety scores on the paper-

and-pencil I.P.A.T. and the joint occurrence of At and aggressive human movement in the Rorschach protocol. Somewhat more hopeful, however, have been the isolated results of a few investigators who have combined the experimental imposition of stress with the observation of individual differences in response to it. Wishner (1953) succeeded in demonstrating a positive correlation between A% and such parameters of physiological responsiveness as respiration rate while the same content index was found to vary inversely with GSR. According to the above author, these findings bespeak a positive relation of A% with diffuse reactivity to stress and an inverse one with focussed, anticipatory responsiveness. Returning to psychological variables, Broida and Thompson (1957) presented some promising, if only tentative, leads pointing to a broader content range, higher (A + H): (Ad + Hd) ratio, lower A%, and fewer Fire, Blood, and Sex responses in a small group of children who were found to be least disrupted by experimental stress.

In contrast to the above studies, much of the recent research in this area, and some of the earlier work, attempts to relate Rorschach content variables to parameters explicitly derived from personality theory, in its psychoanalytic, phenomenological, and sociometric varieties. Within the Freudian framework, Rychlak and Guinourd (1960) have presented data on the association of ratings of ego strength and superego strength and the traditional content indices in a sample of adolescent boys and girls. Generally, the correlations were low and not entirely consistent across sex lines. In girls, there appears to be a negative link between the number of H responses and ego strength measures and a similar inverse relationship between superego strength and A. A more inclusive current undertaking concerned with the association between differentiated and reliable observational estimates of diverse coping and defense mechanisms and Rorschach indices has been reported in part by

Haan (1964) and Kroeber (1963). According to these authors, A was found in greater frequency in subgroups of subjects high in objectivity, intellectualization, suppression, and total coping; subjects low in A characteristically resorted to isolation and were high in "general defensiveness." H was associated with ratings of empathy, and "technical content" was prominently represented in the protocols of individuals characterized by intellectualization. In reference to more general, psychoanalytically derived constructs Silverman (1952) established that both H and At were indicative of awareness of internal conflicts. In the realm of more specific dynamics Péchoux (1963) compiled extensive data on the Rorschach reflections of clinically manifest, unresolved Oedipal conflicts; in his male sample, Art, Flower, Vase and Receptacle responses occurred with higher than average frequency. Wolf (1957) explicitly tested the hypothesis that individuals who act out their destructive impulses do not produce At; upon the comparison of assaultive and non-assaultive subjects, the results were negative.

The few studies that have attempted to link sociometric ratings with Rorschach variables (Rychlak & Guinourd, 1960; Rychlak & Maier, 1964; Wertheimer, 1957) have yielded inconclusive and, for the most part, negative results. In reference to the client's own ratings of self-concept, prominently employed in phenomenologically inspired personality research, the findings of a thorough investigation by LaFon (1954) are both disappointing and baffling. His only positive finding in reference to traditional content pertained to a higher incidence of Hd and Ad among subjects whose self-concepts were favorable, a result that runs counter to the consensus of both Rorschach theory and self-oriented personality research. Fisher (1962), on the other hand, did demonstrate the occurrence of more H in subjects whose self descriptions were positive and free from indications of sexual confusion or from feelings of

"fragility" and "vulnerability."

Studies of suggestibility, less directly pertinent to, but still compatible with self-theory, yield a confusing picture. According to Linton (1954), individuals who yield to social pressure in the autokinetic situation score high in Hd but so do those who resist opinion change in a situation involving social judgments (Linton & Graham, 1959). To compound the confusion, the latter finding stands implicitly in contradiction to that by Witkin, Lewis, Hertzman, Machover, Meissner & Wapner (1954) on the positive association between Hd and field-dependence on perceptual tasks, exemplified by the Embedded Figures and Rod and Frame situation. Obviously, these conflicting results need to be replicated and reconciled.

Also pertinent to the study of personality variables in relation to Rorschach content are those investigations that established links between Rorschach variables and several parameters of responding on other, more structured personality tests. We can point to two such studies in reference to the T.A.T. (Carr, 1956; Shatin, 1955). Number of H varied positively with expressiveness, high degree of human interaction, and expression of feeling, hostility clustered with low H and high At while the presence, though not the number, of At suggested freedom from sterotypy, and A% conversely, betokened inhibitory and restrictive T.A.T. content. Finally, from the rich store of the factorial studies on the Rorschach variables, reviewed not long ago by Murstein (1960), we will extract only a few pertinent findings. Several recent factor analysts (Geertsma, 1962; Kadinsky, 1963; Stancak & Fraenkel, 1961) report that factors highly saturated on A carry negative loadings of H, and vice versa. Several additional polarities may be gleaned from the results of Sandler and Ackner (1951) who devoted their analysis to content exclusively. Thus, there appears to be an axis bounded by anatomical and related percepts at one end and Obj. and Arch on the other and another

dimension delimited by (H), H, Hd, Mask at the positive, and Obj., Pl, N, at the negative pole of the continuum.

Situational Influences

In the clinical situation, the Rorschach test is primarily used as a measure of the long-term "core" characteristics of the personality. Perceptive clinicians, however, have always recognized, and several recent authors (Brückner, 1957; Sarason, 1954; Schafer, 1954) have explicitly discussed, the role of situational and transient influences upon the Rorschach protocol. Concurrently, five varieties of situational influence upon Rorschach content have been investigated. These include: (1) the various techniques of psychopharmacological intervention, (2) the spontaneous or deliberate variation of the interpersonal relationship between the examiner and the subject, (3) the manipulation of the subject's perceptual experience during, or prior to, the test presentation, (4) the inducement of drive states, and (5) the influence of a recent, or prospective, real-life experience.

We will review these five areas of research only briefly. Our task is made easier by the availability of two recent and thorough reviews by Masling (1960) and Zax, Stricker and Weiss (1960), respectively. Neither of these surveys is specifically focussed upon content and we will both rely on, as well as supplement, the coverage provided by the above authors.

Psychopharmacological effects. Short-range psychopharmacological changes induced by a variety of "ego loosening" agents have been rather extensively studied. The results of this work with a variety of substances, such as alcohol (Kikuchi, Kitamura & Oyama, 1961; Kikuchi, Sato & Oyama, 1963; Kelley & Barrera, 1941; Rabin, Papania & McMichael, 1954; Stancak, 1961), sodium amytal (Satake & Tanaka, 1959; Wilkins & Adams, 1947), ravona (Sato, Oyama, Kitamura & Kikuchi, 1962), methedrine (Templeton & Sprue-ill, 1958) and mescaline (Kelly, 1954)

lead to certain converging conclusions. Under the influence of these agents, a decrease in A% is usually obtained, often accompanied by a lowering of the number of H. By contrast, responses in the categories of At and Sex, and less often those of Hd and Ad, are reported to increase upon these kinds of pharmacological intervention. The only study of subjects in a real-life, as opposed to an experimentally induced, state of intoxication which is known to us, is an early one by Weber (1937) who tested patients during and after alcoholic delirium. In conformity with findings summarized above, he found an increase in A% after the effect of alcohol waned. These results appear to be descriptive of a loosening of the subject's adaptive organization, and are, in some respects (e.g., elevation of At) akin to those found in psychopathology, particularly in schizophrenia. At the same time they show little resemblance to the records of children. Although there is a high degree of agreement in these results, they represent only the first step toward a complete understanding of the influence of these pharmacological agents upon Rorschach imagery. So far, no inquiry has been directed toward the comparison of the effects of two different substances, or of several dosages of the same substances. The Japanese research team of Kikuchi, et al. (1962) appear to be the only ones to have addressed themselves specifically to the problem of individual differences in response to pharmacological agents and to the influence of retest upon the content pattern produced.

The pattern of results, moreover, becomes more complex as the two studies concerned with the effects of LSD-25 are considered. The author of one of these investigations stressed the increase of At accompanied by the impoverishment of content (Stoll, 1952) while others reported a decrease in A% concomitant with a rise in H (Levine, Abramson, Kaufman, Markham, & Kornetsky, 1955).

Interpersonal relationships. The reviews by Zax, et al. (1960) and by Masling (1960) bring forth a considerable amount of evidence that such factors as the sex of the examiner, or the nature of the relationship fostered by him or her, have a tangible, if limited, effect upon content categories. Several, though not all, authors concerned with this problem have noted different frequencies of Sex responses depending on whether the subjects were tested by psychologists of the same, or of the opposite sex. A cold rejecting atmosphere during the testing session tends to promote constriction in Rorschach performance and the results in a limited range of content categories and a high A%. Yet, it has also been found that hostile examiners elicit an increased number of H and a lowered A%. Several of the Rorschach content categories, e.g., H, have been found to be sensitive to the widely used techniques of verbal conditioning; reinforcement of such responses by means of "hm" resulted in their increased incidence. The more direct methods of suggestion, e.g., providing the examinee with information that a particular content category is given by "successful" or "well-adjusted" people led, expectedly, to the more frequent appearance of this response variety in the subjects' records. More surprisingly, a recent study by Masling (1965) points to the similar effectiveness of indoctrinating student examiners with the alleged interpretive value of a specific content category, A or H. Even in the absence of any palpable difference in test instructions, the recipients of this differentiated indoctrination somehow succeeded in inducing the subjects to produce an increased share in the supposedly "valuable" response category.

Perceptual variables. By contrast, the conclusions of the reviewers (Zax, et al. 1960) are less clear-cut when the influence of perceptually induced sets was considered; presence of food objects or anatomical illustrations in the subject's view during Rorschach pre-

sentation did not result in an increased production of responses within these categories. Discrepant with this last conclusion is the recent finding by Van de Castle (1964) that even so subtle an intervention as the administration of Draw-a-Person and TAT before the Rorschach led to increased number of H. We suggest that the difference in the findings of this study and the conclusions from the earlier work may be traceable to two factors. For one, perceptual sets may have a greater degree of facilitating effect upon relatively frequent content categories, such as H, than upon the ones which are rarely given, such as At or Food. Secondly, an active response to set-relevant stimuli may be a prerequisite to their actualization in the Rorschach protocol. In the studies reviewed by Zax, et al. it will be recalled, the perceptual set was induced by the sheer presence of the relevant object; in the Van de Castle report the subjects were called upon graphically or verbally to respond to the human figure. More drastic and global variations, such as those experienced in sensory deprivation, are apparently adequate in producing content change; the only exploratory report pertinent to this experimental condition (Sato & Oyama, 1963) emphasizes the increase in At upon the subject's emergence from experimental isolation.

Experimentally induced motivational states. Manipulation of need states has been undertaken by Epstein (1961), and by Kjenaas and Brozek (1952) who tested subjects following periods of food deprivation, by Lucas (1961) who experimentally induced frustration in children, and by Calden and Cohen (1953) who varied the subjects' understanding of the purpose of the test, as well as the extent of their ego involvement. Also within the same general area of study is another investigation by Epstein and Smith (1957) in which the intensity of current sexual drives was related to test content, although there was no attempt made to induce or vary the drive state experimentally.

Broadly speaking, most of the above authors observed positive, if limited, effects of the above experimental conditions. Epstein, however, found that the number of Food responses was not directly proportionate to the length of deprivation or abstinence and that, moreover, the occurrence of this kind of drive-related content was negatively related to measures of ego strength. Working with subjects who were volunteers in a prolonged semi-starvation, rather than in a short food deprivation, experiment, Kjenaas and Brozek were unable to find increased incidence of Food responses or other content changes among the effects of the experimental procedure. In reference to sex drive, incidence of this category of Rorschach response was significantly associated with the frequency of orgasm, as reported, anonymously, by the subjects, but not the length of time since last orgasm (Epstein & Smith, 1957). In Lucas' study the liberating effects of a retest session, in the form of loosening subjects' response to the inkblots, came to overshadow the effects of experimental frustration. More dramatic apparently were the effects of test definition varied by Calden and Cohen. Perceptibly different content patterns emerged in groups of subjects to whom the test was introduced as a measure of intelligence, imagination, or "nervousness." Differences were also produced by presenting the test session as being primarily diagnostic in intent, or as one that was experimentally oriented. In general, groups in whom a high degree of ego involvement was produced tended toward a higher number of H and Hd and a broader range of content. Introduction of the measure as an intelligence test resulted in increased A% and a more constricted record than when the test was presented as one of "imagination" or "nervousness."

Real-life experiences. Standing in contrast to the research reviewed above, there are the investigations of those authors, most of them European, who have addressed themselves to the ef-

fects of real-life, rather than experimentally induced, experiences upon the content of Rorschach responses. These studies are few and isolated, yet they are representative of a potentially fruitful approach. A recent example of such research is provided by Guillaumin and Guyotat (1961) who studied the variations in the number of At responses in several groups of patients awaiting surgical operation. Of special relevance is their result according to which patients with chronic physical disability states were demonstrated to have a higher number of At than sufferers from acute conditions. This finding introduces the role of time as a factor mediating the appearance of a motivationally relevant content category in the Rorschach protocol; apparently, there is a period of "gestation" necessary before an object of the individual's concern, wish, or fear comes to be represented in the repertoire of the patient's responses to inkblots. In part, this conclusion might explain the rather limited effectiveness of momentarily induced states upon variation in Rorschach content, reviewed in the preceding section. This conclusion, however, has to be tempered in the light of the findings of several other investigators who were able to establish the effects of less dramatic and more transient states upon Rorschach content. The most remarkable is that by Dawo (1952) who reported a pronounced increase of At, Obj., Sex, and Blood over their own established baseline in a small sample of normal women who were tested during their menstrual period. Mahler-Schoenberger and Silberpfennig (1938) discovered that, in a sample of amputees, the occurrence of At was related to the experience of "phantom limb," and Abel and Weissman (1952) in their research on facially disfigured individuals also noted extensive individual differences which, in part, were associated with the severity of the disfigurement. Paradoxically, they found a greater number of At in mildly, rather than severely, disfigured cases. The same response category was overrepresented in a sam-

ple of unmarried pregnant women tested by Cotte (1957) and may occur with enhanced frequency in all those situations where there is concern over bodily integrity, and stability.

Conclusions

Our account of research investigations related to formal Rorschach content classification is now complete. What remains to be provided is an integration of this heterogeneous, and often contradictory or inconclusive body of data with the practices of clinical Rorschach interpretation. To accomplish this task, we will refer to the statements of several current Rorschach textbook authors, both in this country and abroad, and pit their suggested interpretation of content criteria against the consensus of research workers. In choosing this strategy, we will, for the purposes of this paper, look upon the writings of Rorschach authorities as sources of hypotheses, to be verified or refuted by the formal research techniques of data collection and evaluation. We are, of course, well aware that most textbook statements are empirically based as they stem from their authors' clinical experience and the consensus of other Rorschach practitioners. Nonetheless, in the discussion that follows, we will accord these statements a heuristic, and not a substantive value.

Our attention will first turn to the significance of A, the most frequent and the most widely used Rorschach content category. We have seen that the proportion and number of these responses has not been found to vary significantly as a function of test intelligence, ontogenesis, or most varieties of psychopathology. Thus, the writings of those authors (e.g., Loosli-Usteri, 1958; Bohm, 1958) who have accorded interpretive significance to A or A% in the above areas have failed to be verified by the systematic techniques of research investigators. There are, however, a number of somewhat subtler correlates that at least tentatively emerge from the research investigations of this content variable. From the consensus of

studies on interpersonal and psychopharmacological effects, on clinical improvement, and response to psychotherapy, as well as those concerned with depressive and manic states, we infer that A% represents an index of some of the more mundane aspects of adaptive control and is akin to a measure of reality testing in its more concrete sense. To elaborate, it would appear that A% provides us with some information on a person's current stand on the axis from autism to sterotypy. More specifically, a low representation of this content variable might appear both in the instances of pathologically lowered ego control and of adaptive regression; an exclusive or prominent reliance on A is a characteristic shared by constricted normal, and impoverished psychotic patients. In a positive sense, high scores in this category bespeak the ability to react in a predictable and appropriate fashion to the routine aspects of the environment. On the negative side, high A% might be expected to go together with a resistance to change, and a potential for confusion and disruption in the case of variations in one's environment. Low scorers in A, on the other hand, whether they be autistic, creative, or eccentric, appear to share the trait of looking at the world in a somewhat different, personal, and unusual way. In the light of these considerations, our interpretation of A% accords well with that suggested by several Rorschach experts who view this measure principally as an index of stereotypy (Beck, 1950; Bohm, 1958; Endara, 1964; Klopfer, et al. 1954; Piotrowski, 1957). More broadly, it appears that the relevance of A% to pathology and intelligence is indirect, and its immediate value is that of an indicator of a stylistic outlook toward the world which regulates the utilization of available intellectual resources and shapes the choice of one's defense mechanisms.

As we proceed to H, we find the research investigators and the above textbook authors substantially in agreement; the principal meaning of H appears as an index of social maturation.

It appears established that H varies directly with ontogenesis, cognitive development, and maturity in one's present or potential social relations, as indexed by progress in psychotherapy or clinical improvement. Moreover, H appears to hold a place of prominence in the protocols of members of those professions in which a high degree of social involvement is called for. In the realm of psychopathology, it appears to differentiate individuals who maintain some reality oriented social contacts from those who retreat into self-blame, inactivity and fantasy. Finally, we learn from factorial studies that high loadings on A go together with low H, and vice versa. This would suggest that H scorers are characterized by some of the traits that we have found lacking in people predominantly relying on A; an ability to go beyond the trite and the obvious and to participate actively in the necessarily ambiguous world of social interaction.

The interpretive meaning of At, on the other hand, in the view of both Rorschach experts and research consensus, connotes the degree of a person's self-absorption, whether occasioned by a withdrawal into autism, as in schizophrenia, or bodily and physiological changes, as in puberty, pregnancy, or prolonged physical illness. In all of these conditions, there appears to be a heightened concern with one's bodily functioning and integrity, and a concomitant lessening of interest in the external world. The only discrepant note is provided by the studies of hypochondriacs which yielded no At beyond expectancy in the above clinical group. To account for the above paradox, we accept the explanation offered by Weiss and Winnik (1963); according to the above authors, the necessary condition for the appearance of an increased number of At in the protocol is the presence of anxiety or conflict focussed on bodily concerns, over and above the occurrence of somatic preoccupations as such. Their argument introduces the important notion of vicariousness whose relevance goes far beyond the consider-

ation of At responses. We will have occasion to refer to this concept in explaining many other findings in the theoretical paper of the present series.

For the time being, it should be stated that two other characteristics often postulated by textbook authors (Bohm, 1958; Brückner, 1957; Endara, 1964; Klopfer, et al. 1954; Piotrowski, 1957; Phillips & Smith, 1953) in association with At, have been only sparsely and inconclusively tested. These include the tendency on the part of the subject to impress the examiner with his intelligence and erudition, or the "intelligence complex" in the terminology of Rorschach (1921) and some of the more recent writers (Piotrowski, 1957; Bohm, 1958) and the subject's conflict over his aggressive impulses, hypothesized by some contemporary writers (Phillips & Smith, 1953; Schafer, 1954). As far as conflicts over aggression are concerned, we only know that the joint occurrence of At and H has been found associated with self-report measures of anxiety as well as with suicidal attempts and ruminations.

With reference to the above hypothesis, there are a few data in the Rorschach literature that are directly pertinent to it. This apparently is so because of the difficulty in objectively rating the particular kind of intellectualization that Rorschach has described. More generally, however, the results of the investigators who studied the occurrence of At among members of biological and medical professions suggest that, at least in these groups of anatomically trained people, this response category lends itself to the imposition of intellectual mastery over the ambiguous ink-blot configurations.

Our research knowledge becomes fragmentary as we turn to Hd and Ad, as well as to such relatively infrequent content categories as Pl, N, Geo., Obj. What empirical results exist, suggest that Hd and Ad bespeak a critical attitude and tension, somewhat in conformity with the value that these responses have been accorded in several of the standard sources (e.g., Klopfer,

et al. 1954; Phillips & Smith, 1953; Piotrowski, 1957). Obj., on the other hand, appears to reflect a differentiated awareness of, and an active orientation toward, the external world, an interpretation which again is in conformity with the statements in several Rorschach manuals. By contrast, Pl, N, and Geo. which have repeatedly been claimed to provide indications of a passive, conforming, "model pupil" type of adjustment (e.g., Bohm, 1958; Phillips & Smith, 1953; Piotrowski, 1957), have occasionally been found in groups characterized by immaturity and passivity.

The infrequent and rather transparent responses in the categories of Blood and Sex, apparently are of some value in offering us a glimpse of the individual's manner of managing his aggressive and sexual impulses. These two classifications have been found to occur with an above average frequency in three types of populations: individuals whose ego control is disturbed through psychosis, persons apprehended for aggressive acts (in the case of Blood) or sexual offenses (in the case of Sex), and some kinds of emancipated individuals. Closely related to the factor of emancipation is the repeated finding that more Sex responses are produced when the subject and the examiner are of the same sex and the observation of those investigators (e.g., Schachter, 1948) who found a disproportionate share of Sex in normal, socially effective groups of subjects who were friends of the examiner. The latter finding is to a degree anticipated in some of the current textbooks (Phillips & Smith, 1953) and the research conclusions on Sex and Blood accord well with the consensus of Rorschach authorities. Less research information is available on the conditions that favor the appearance of Food responses. It may be recalled, however, that the occurrence of this category, even in a situation of food deprivation, has been found mediated by ego strength.

From the above overview, it has become apparent that no single content

variable, from among the ones reviewed is isomorphic with a diagnostic category, a defense mechanism, or a dynamic constellation. To the extent that content variables have any value, they provide a general indication of the subject's relationship to external reality, his social interaction, his psychological and somatic self, and his impulse life. Even within the scope of these broad, partially validated, relationships the picture is far from complete. Considerable ambiguity remains as to the relationship between personality variables and test indications. Further progress in bridging the gap between the clinical usage of the test and research evidence that supports it is predicated upon advances in the scaling, measuring, and observing a real-life behavior.

But this is certainly not the only condition on which further research advances depend. In reviewing the theoretical and clinical writings on the Rorschach test and pitting them against the available research evidence we have become aware of a number of disparities between the practice-oriented writings and the predilections of the researchers. In particular, we would like to list the following divergences between the textbook authors and the bulk of the authors of research studies that have been surveyed above:

(1) Authors of Rorschach texts favor dimensional personality constructs; much of the Rorschach content research is conducted in reference to qualitative categories.

(2) The typical research study, in the areas reviewed, is aimed at the differentiation of groups of maximal contrast, e.g., schizophrenics and normals; much of the textbook emphasis is placed on the allegedly differentiating features of highly similar groups, e.g., ambulatory versus hospitalized schizophrenics, obsessive compulsive versus hysteric neurotics.

(3) In the studies reviewed, content categories have usually been considered independently of determinants, locations, and themes; texts devote considerable space to the interpretive meaning of

these content units in conjunction with the other scorable features of Rorschach responses.

(4) Finally, content categories are considered by the clinical authorities in relation to each other; in the studies reviewed, they are often investigated in isolation.

In the second paper of the present series, we will go into other areas of Rorschach content research in which the investigators transcend the traditional content classification scheme and, by so doing, narrow the gap between the operations of the researchers and the practices of the clinical users of the test, as these are exemplified in the teaching oriented writing of the Rorschach authorities.

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Validation of a College Problem-Drinking Scale¹

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Summary: Validation material for a college problem-drinking scale was presented in two studies. The scale was used as a measure of problem drinking and as a potential means of identifying prealcoholics. Sociometric data, drinking behavior data, and nonbehavioral drinking data were used in validating the scale. Results supported current interpretation of the scale. It was concluded that the scale is an adequate measure of problem drinking, and that it may be interpreted as a measure of predisposition to alcoholism. This suggests the possibility that a substantial number of problem drinkers may become alcoholics as adults.

In constructing a college problem-drinking scale Park (1958) selected 28 items relating to drinking behavior and attitudes toward drinking from the Straus and Bacon (1953) study of drinking among American college students. Factor analysis of these items yielded four interpretable factors, one of which was identified as problem drinking. The problem-drinking factor contains 13 items, 12 with positive factor loadings, one with a negative loading.² Park considered the scale to be a measure of predisposition, or proneness to alcoholism.

In studies by Park (1958) and Williams (1964; 1965; 1966; in press) problem drinkers have been compared to nonproblem drinkers on a variety of psychological and sociological variables. In these studies problem drinkers have also been considered as though they were prealcoholics in order to gain leads to the etiology of alcoholism. In research with alcoholics, etiological statements are precluded since the possibility exists that personality findings are consequences of long-term excessive drinking. By working with problem drinkers in young adulthood, it may be possible to identify prealcoholic personality traits, and to distinguish them from traits which result from the social and psychological consequences of alcoholism.

Two questions about the problem-drinking scale need to be answered: (a) Does the scale measure problem drinking? That is, is there evidence to show that drinking is a problem for those with high scores on the scale?³ (b) Are college problem drinkers prealcoholics? To answer the latter ques-

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² The 12 positively-loaded items are "has felt that subject might become dependent on or addicted to the use of alcoholic beverages"; "has incurred social complications due to drinking"; "has feared the long-range consequences of own drinking"; "drinks large or medium amount of alcoholic beverages at a sitting and more than once a week"; "likes to be one or two drinks ahead without others knowing it"; "has gone on the water wagon as the result of self-decision or advice of the family or friends"; "has had one or more drinks before or instead of breakfast"; "has become drunk when alone"; "has had one or more drinks alone"; "has gone on week-end drinking sprees"; "has been led by drinking to aggressive, wantonly destructive, or malicious behavior"; "has experienced blackouts in connection with drinking." The last six items are scored if they have occurred one or more times. The negatively-loaded item is "drinks to comply with custom."

³ In presenting the scale, Park did not emphasize this issue. His primary concern was with the scale as a measure of predisposition to alcoholism, and he used the term, "problem drinking" as implying predisposition. It is true that the validation material to be presented deals with both questions simultaneously (that is, if evidence indicates that high scorers on the scale may be said to be predisposed to alcoholism, they may also be said to be problem drinkers). However, it was felt necessary to separate these questions since if a substantial number of prob-

tion it will be necessary to determine rates of alcoholism among former college problem drinkers and non-problem drinkers some 10-20 years after they were measured on the problem-drinking scale. However, if it can be demonstrated that there are similarities between problem drinkers and alcoholics in aspects related to drinking, this evidence would support interpretation of the scale as a measure of predisposition to alcoholism. Such evidence would also lend support to the notion that the problem-drinking scale is able to identify prealcoholics, on the reasonable assumption that college-age persons who show similarities to alcoholics in drinking behavior or in other aspects related to drinking constitute a high-risk population, a population from which future alcoholics will be drawn.

In a content analysis of items making up the problem-drinking scale, Park (1958) noted that the bulk of the items are considered to represent characteristics of alcoholism. However, the scale, when applied to a college population, cannot be considered a measure of alcoholism. The behavior items are scored as indicating problem drinking if they have occurred one or more times, while alcoholics would have manifested most of these behaviors many times. It is unlikely, although not impossible, that any college males scoring high on the scale are alcoholics. However, college problem drinkers have begun to manifest characteristics of alcoholics and the scale has face validity for its interpretation as a measure of predisposition, or proneness to alcoholism.

Park also presented data showing that problem drinking tended to be significantly related to behaviors external to the scale which were listed by Jellinek (1946) as representing typical experiences in the drinking history of alcoholics.

lem drinkers do not later become alcoholics, it may still be possible to use the scale as a measure of college problem drinking.

One drawback in Park's research was that items in the problem-drinking scale and the validation material were originally designed for alcoholics. As Park noted, it was likely that problem drinkers interpreted some of the items differently from alcoholics, or that there were qualitative differences between problem drinkers and alcoholics in the type of behavior tapped by the items. For example, concerning the item "morning drinking," from the scale, Park noted a qualitative difference between alcoholics' morning drinking in order to overcome a hangover or to "face the day," and the morning drinking which often occurs on college party week ends. However, Williams (1964) has shown that problem drinking is also strongly related to drinking behaviors external to the scale which imply problem drinking and reflect typical drinking experiences of alcoholics, but which are not subject to different interpretations by problem drinkers and alcoholics. Problem drinkers were found to significantly exceed nonproblem drinkers in frequency of drinking to excess, drinking to excess in situations in which others do not, drinking more than they planned to before starting, and in having been advised to quit or cut down on their drinking because of some drinking-related incident.

Two validation studies are presented in this paper. One study features sociometric data; in the other, problem drinkers were compared to alcoholics in terms of nonbehavioral aspects related to drinking. It has been shown that the scale is composed mainly of items reflecting behavioral characteristics of alcoholism, and that problem drinking is related to additional behaviors associated with this disorder. If these behaviors continue to occur in adult life, they are likely to lead to alcoholism. Yet the possibility exists that a number of college-age people who exhibit drinking behaviors characteristic of alcoholics either discontinue or do not increase the frequency of these behaviors as adults, and thereby do not become al-

coholics. However, if it can also be shown that problem drinkers are like alcoholics in non-behavioral drinking aspects, particularly those which are tied to theories of alcoholism, this evidence would lend greater support to the assumption that the problem-drinking scale is able to identify prealcoholics.

Procedure

First Study. Subjects for the first study were 91 male students (all drinkers) from five fraternities at two men's colleges in New York State. These *Ss* participated in a study of psychological effects of social drinking, a party being held at each fraternity.⁴ The evening before parties were held they completed a series of inventories, including the problem-drinking scale. About three weeks after parties had been concluded, 87 of these *Ss* completed a questionnaire containing the validation material.

In one part of the validation questionnaire *Ss* were asked three sociometric questions: which of the people attending the parties they considered to be (a) big drinkers, (b) people who sometimes or often get into trouble because of drinking, and (c) people who now have—or will have in the future—a drinking problem.

In another section of the questionnaire problem drinkers were compared to alcoholics in terms of their first drinking experience. Ullman (1953) found that alcoholics recalled their very first drink more often than nonalcoholics and were more likely than nonalcoholics to have gotten high or drunk during their first drinking episode.

Second Study. The second study was undertaken in order to obtain additional data concerning the similarity between problem drinkers and alcoholics, particularly in terms of non-behavioral data. Subjects for this study were junior and senior male drinkers from a New England college who completed a

questionnaire about "drinking practices and attitudes of male college students." The questionnaires were anonymous, were handed out by instructors in class, and were filled out by students between classes and handed in that same day. There were 289 *Ss* who completed usable questionnaires.

Ullman's first drink questions were included in this questionnaire. Other questions were included in order to see if problem drinkers were similar to alcoholics in having (a) mothers who disapproved of drinking in general (Menaker, 1965); (b) parents who disagreed in their attitudes toward drinking (Jackson and Connor, 1953; Menaker, 1965). The data used to support the latter finding were derived primarily from questions about drinking behavior rather than from questions on attitudes. In the present study the possible attitude responses were: (a) shouldn't drink; (b) only very occasional and light drinking is okay; (c) social drinking is okay, but it's not okay to get drunk; (d) social drinking is okay, and it's okay to get drunk once in a while; (e) any kind of drinking is okay. The five responses were ordered in terms of increasing tolerance toward drinking. A disagreement was scored if the same response was not checked for both parents.

The Definitions of Alcohol Scale (Mulford and Miller, 1960a) was also included in the questionnaire. There are six scale types, the first three (I, II, III) indicating that the subject defines alcohol for personal effects (with scale score, I incorporating the most extreme personal effects); scale scores IV and V indicating social effects; and scale score VI indicating failure to respond affirmatively to any of the previous scales.⁵ Mulford and Miller (1960b) found that

5 Examples of items in each scale type are as follows. Alcoholic beverages (a) I: help me forget I am not the kind of person I really want to be; (b) II: give me more confidence in myself; (c) III: make me more carefree; (d) IV: improve parties and celebrations; (e) V: are customary on special occasions.

⁴ Results of this study are presented in Williams (1964). Part of the results are also reported in Williams (1966).

94% of the 35 alcoholics in their sample defined alcohol for personal effects versus about 47% of the 670 nonalcoholics; 77% of the alcoholics and approximately 19% of the nonalcoholics were I or II; 68% of the alcoholics and about 10% of the nonalcoholics were I.

In scoring the problem-drinking scale, scores of +1 were given to positive responses to the 12 positively-loaded items and a score of -1 to a positive response to the negatively-loaded item.⁶ The theoretical range of scores on the scale was therefore -1 to +12.

Results

In the first study the mean of problem drinking scores was 5.3; the range -1 to +12; the standard deviation 2.9. In the second study the mean was 2.5, with a range of -1 to +11 and a standard deviation of 2.6.

For most of the personality data on problem drinkers which has been reported, correlational analysis has been used. When *t* tests have been employed, those with scores of five or more have been classified as problem drinkers. The one exception to this procedure was in the first study of this paper when, because of the many high scores, those who scored seven or more were designated as problem drinkers. In analyzing the validation data, the general procedure when correlational analysis is not used has been to consider those scoring five or more as problem drinkers.⁷ When there are differences between those scoring around five or six on the scale and those scoring higher, these differences have been pointed out.

First Study. Table 1 presents correla-

tions between problem drinking and the three sociometric variables. Each of the three correlations was positive, high, and statistically significant in the predicted direction.

It was found that: (a) 80% of all of the problem drinkers (scores 5 - 12)

Table I—Correlations Of Problem Drinking Scores and Sociometric Reputations (N=91)

Sociometric Variable	r
Reputation as big drinker ^a	+ .47 ^{***}
Reputation for getting into trouble because of drinking	+ .47 ^{***}
Reputation for present or future drinking problem	+ .38 ^{**}

^a The three correlations are Pearson correlations based on the five fraternity samples combined. Scores were computed by means of the formula: number of nominations / number of nominators.

* $p < .0005$, one-tailed

*** $p < .00001$, one-tailed

and 97% of those scoring from 7 - 12 received at least one nomination as a big drinker, compared to 42% of the nonproblem drinkers. (b) 67% of all of the problem drinkers (81% of those scoring from 7-12) versus 39% of the nonproblem drinkers were nominated at least once as persons who sometimes (or often) get into trouble because of drinking. (c) 46% of all of the problem drinkers (58% of those scoring from 7-12) were considered as people who now or will in the future have a drinking problem. Eighteen percent of the nonproblem drinkers received nomination for this category.

The first drink data from the first study will be presented in combination with these data from the second study.

Second Study. In the first study the point biserial correlation between problem drinking and recall of first drink was +.13, positive but not statistically significant. In the second study the

⁶ This scoring procedure differed from that of Park. Park computed problem-drinking scores as the sum of the factor loadings of the items in the scale.

⁷ Classifying anyone scoring five or more as a problem drinker means that over half of the *Ss* of the first study were so labeled. However, in this study, a number of steps were taken to insure that a large percentage of high scorers on the scale would be included in the sample (see Williams (1964) for a full discussion of subject recruitment procedures in this study).

correlation between these two variables was +.08. When these two correlations were combined, the resulting correlation was +.09 ($p < .05$, one-tailed).

Subjects from both studies who recalled their first drink were classified according to whether they had experienced no effect from their first drinking episode or had become high, sick or drunk. The results (Table 2) indicated that problem drinkers were more likely than nonproblem drinkers to have

Table II—Relationship Between Problem Drinking (PD) And The Effect Of The First Drinking Episode, In Per Cent.

PD Scores	No Effect	Some Effect	N
5 to 12	35	65	66
2 to 4	60	40	72
-1 to +1	66	34	70

experienced some effect from the first drinking episode. The chi square calculated on these data was highly significant ($\chi^2=14.46$, $p < .001$, two-tailed).

The data relating problem drinking and mother's disapproval of drinking are presented in Table 3. These results indicated some support for the hypothe-

Table III—Relationship Between Problem Drinking (PD) and Mother's Attitude Toward Drinking, In Per Cent.

PD Scores	Mother Approves	Mother Disapproves	N
5 to 11	75	25	65
2 to 4	73	27	104
-1 to +1	88	12	114

sis that problem drinkers would have a greater proportion of mothers who disapproved of drinking than nonproblem drinkers, thus making them similar to alcoholics. However, problem drinkers and nonproblem drinkers scoring from 2-4 had similar percentages of mothers disapproving of drinking. Only those nonproblem drinkers scoring from -1 to +1 had an appreciably lower percentage of disapproving mothers. A chi square

calculated on all of the data in Table 3 was 8.10 ($p < .005$, two-tailed). When problem drinkers (5-11) were compared to nonproblem drinkers scoring from -1 to +1, the chi square was 4.51 ($p < .05$, one-tailed).

The data on parental attitudes are presented in Table 4. As hypothesized, parents of problem drinkers more often than parents of nonproblem drinkers

Table IV—Relationship Between Problem Drinking (PD) and Parents' Attitude Toward Drinking, In Per Cent.

PD Scores	Parents Agree	Parents Disagree	N
5 to 11	50	50	62
2 to 4	55	45	96
-1 to +1	66	34	108

disagreed in their attitudes toward drinking (i.e., were at least one step apart in terms of the five categories used). The chi square calculated on the entire table was 4.57 ($p < .20$, two-tailed). When problem drinkers were compared to the -1 to +1 nonproblem drinkers, the chi square was 4.07 ($p < .05$, one-tailed). Parental disagreement, when it occurred, was also more extreme in the case of problem drinkers. Of the 31 problem drinkers whose parents had discrepant attitudes, 52% had parents who disagreed by more than one step of the five response categories. The corresponding percentages for nonproblem drinkers scoring from 2-4 (47%) and from -1 to +1 (27%) were lower.

The data on the Definitions of Alcohol Scale (Table 5) indicated that problem

Table V—Relationship Between Problem Drinking (PD) and Definitions of Alcohol Scale Scores, In Per Cent.

PD	Scale Scores						
Scores	I	II	III	IV	V	VI	N
5 to 1	23	32	38	5	2	0	65
2 to 4	10	25	40	11	8	5	107
-1 to +1	6	11	32	15	21	14	117

drinkers were more likely than non-problem drinkers to define alcohol for personal effects. When the tabled data were collapsed so that personal effects definitions (scale scores I, II, III) and scale scores IV, V, and VI were analyzed in terms of problem-drinking scores, the resulting chi square was 41.85 ($p < .001$, two-tailed). Ninety-three per cent of the problem drinkers (as compared to 94% of Mulford and Miller's alcoholics) drank for personal effects. Fifty-five per cent of the problem drinkers (compared to 77% of Mulford and Miller's alcoholics) were scale types I or II. Twenty-three per cent (versus 68% of Mulford and Miller's alcoholics) were scale type I, extreme personal-effects drinkers. Fifty per cent of the 16 problem drinkers scoring from 8-11 were scale type I.

Discussion

The results of the validation material for the problem-drinking scale are encouraging. The sociometric data supported self-reported aspects of drinking on the scale and indicated also that problem drinkers tend to be thought of as people whose drinking will seriously interfere in their lives. The percentage of problem drinkers nominated as big drinkers, people who get into trouble because of drinking, and as present or future problem drinkers was consistently high, particularly for those problem drinkers scoring 7+ on the scale.

Although the correlation between problem drinking and recall of first drink was statistically significant in the predicted direction, the magnitude of the correlation was so small as to be almost negligible. However, among those who remembered their first drink, problem drinkers were far more likely to have experienced some effect, rather than no effect, from the first drinking episode. The findings correspond to studies with alcoholics which have suggested that the effect rather than the recall of the first drink is the factor which is most prominent in differentiating alcoholics and nonalcoholics (Ullman, 1960; Cramer and Blacker, 1961; Menaker,

1965).

In terms of Ullman's learning theory of alcohol addiction, the first drink is likely to be recalled by alcoholics because of its psychological meaningfulness for them. This psychological meaningfulness is assumed to have its origin in ambivalence about drinking which is present before the first drink is taken. Experiencing an effect from the first drinking episode indicates that enough alcohol was taken to reduce anxiety which is likely to have been generated by the ambivalence about drinking, thereby setting up conditions for the learning of the drinking response as a means of coping with anxiety.

The finding that problem drinkers have parents who differ in their attitudes toward drinking is consistent with the notion that problem drinkers, like alcoholics, are likely to have backgrounds which set up the conditions for ambivalent feelings about drinking. When parents, the major primary group influence, do not agree in their attitudes toward drinking, it is difficult for their offspring to form well-integrated attitudes on this subject.

The tendency for alcoholics to exceed nonalcoholics in having mothers who disapproved of drinking held for problem drinkers only in comparison with non-problem drinkers scoring from -1 to +1. Problem drinkers and nonproblem drinkers scoring from 2-4 had approximately equal percentages of mothers who disapproved. Actually, these percentages were fairly small: having disapproving mothers is not a typical situation for either of these groups. In terms of the theoretical position outlined above, however, both problem drinkers and nonproblem drinkers scoring from 2-4 should have more ambivalence about drinking than nonproblem drinkers scoring from -1 to +1. There exists also the possibility that problem drinkers with disapproving mothers—by virtue of their being more extreme drinkers than nonproblem drinkers scoring from 2-4—have a greater amount of conflict about drinking.

The Definitions Scale indicated that problem drinkers were like alcoholics in defining alcohol for personal effects. Scale type III does not necessarily indicate a deficient self. However, in scale types II and I, an increasingly negatively-valued self is involved, indicating that alcoholic beverages are drunk in order to "redefine" the self, or as a means of reducing self-awareness. While not as many problem drinkers as alcoholics were extreme personal effects drinkers (I), 50% of problem drinkers scoring from 8 - 11 were type I. Since the Definitions Scale may in part reflect consequences of alcoholic drinking, it is noteworthy that so many problem drinkers define alcohol for personal effects already, and that a substantial number of them are I or II. Problem drinkers drink for personal effects rather than social effects, suggesting that they have motivation for continuing to drink like alcoholics after they leave the college environment.

In a random sample of the Iowa population Mulford and Miller (1960b) found that 26.1% of those with I scores were alcoholics. This predictive ratio probably cannot be applied with much accuracy to other populations, but one may note the likelihood that if problem drinkers with I scores now continue to have I scores as adults, a number of them will be alcoholics.

Mulford and Miller (1960b, 1960c) found that 74% of the alcoholics in their sample were heavy drinkers, versus 13% of the nonalcoholic drinkers, and that the rate of alcoholics among heavy drinkers was 23.8%. Heavy drinkers are those who drink more than once a week and consume medium or large amounts.⁸ This same quantity-frequency measure is contained in the problem-drinking scale, and subjects receive a positive score on problem drinking if they are heavy drinkers. In the two samples reported in this paper plus two

other samples (Williams, 1965; Williams, in press) 82% of the 164 problem drinkers (scores 5 - 12) were heavy drinkers, as compared to 38% of the 156 nonproblem drinkers scoring 2 - 4, and 6% of the 162 non-problem drinkers with scores of -1 to +1. Thus more problem drinkers than alcoholics were heavy drinkers although, as noted above, the heavy-drinking variable is not independent of the problem-drinking scale. It may be seen, however, that the 23.8% rate of alcoholism among adult heavy drinkers in Mulford and Miller's sample indicates the likelihood that if those who are problem drinkers now continue to drink heavily in the future, some of them are likely to be alcoholics.

Mulford and Miller found in their Iowa sample that heavy drinkers who were also Definitions Scale type I had an alcoholism rate of 48%. There were 14 (22%) of the 65 problem drinkers scoring from 5 - 11 who were in this category as compared to 3 (1%) of the nonproblem drinkers. Eight (50%) of problem drinkers scoring from 8 - 11 were in this category. Again, if these Ss continue to show this pattern as adults, it is likely that some of them will be alcoholics.

The validation data presented support interpretation of the problem-drinking scale as a measure of problem drinking and as a measure of predisposition to alcoholism. Problem drinkers are beginning to drink like alcoholics, and the non-behavioral data suggest that they will continue to drink like alcoholics, and that as adults a substantial proportion of them will become alcoholics. It is recognized that the ultimate criterion for validation of the problem-drinking scale is whether or not problem drinkers do at a later date become alcoholics. However, the validation data encourage current use of the problem-drinking measure as a means of identifying prealcoholics.

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Announcement

SECOND DOUGLAS MCGREGOR MEMORIAL AWARD

In 1967, the second award of \$400 will be made as a memorial to Douglas McGregor for an article in the area of Organizational Development. The article receiving the award will be published in the fall issue of *The Journal of Applied Behavioral Science*.

Because Douglas McGregor's contribution was to provide a theoretical base and to test its practical application in programs of planned organizational change, articles that might describe attempts to integrate research with action concerned with human behavior and organizational structure and development will meet the general requirements of this award. Basically, the only real limitation should be that the article have implications for the real world.

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Articles should be sent to Mrs. Aileen Waldie, Secretary for the Award Committee, National Training Laboratories, National Education Association, 1201 Sixteenth Street, N.W., Washington, D. C. 20036.

Effect of Test Order Upon Children's Rorschach Animal Content

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Summary: The effect of test order upon the production of Rorschach animal content was evaluated by administering a projective battery to 40 male children at a child guidance center. The control group received in predetermined sequence the Rorschach, DAA, and the CAT. The experimental group was administered in order the DAA, CAT, and the Rorschach. The control (N=20) and experimental group (N=20) were matched on the dimensions of age, sex, examiner, psychiatric status, R, and IQ. Subjects who were administered tests emphasizing animal drawings and animal stories prior to the Rorschach administration produced significantly more animal content than the control group. The data suggests that the sequence of individual tests given in a battery can exert a significant influence on the productivity of content in the Rorschach test.

In a review of a series of studies, Masling (1960) has pointed out the significant effects situational and interpersonal variables may have on the scores of projective tests. However, investigations of the effect of test order as a situational variable influencing structured or unstructured test productivity have been limited. Cassell, Johnson, and Burns (1962) concluded that test order of presentation in their battery of largely structured tasks "made no difference in the overall results." Van De Castle (1964) challenged the rationale of Cassell, Johnson, and Burns in assuming that experience with any of their presented tests (short form of Wechsler II; H-T-P, and selected subtests of the WRA) would alter the S's responses to any later paper and pencil test included in their battery. Van De Castle found that two matched groups of 22 graduate theological students showed significant differences in the production of human content, depending on whether the Rorschach preceded or followed in a test presentation order of nine TAT cards and two DAP drawings. Furthermore, the sensitivity of Rorschach responses to subtle verbal and nonverbal examiner behavior has been demonstrated by Wickes (1956), Gross (1959), and Magnusson (1960). In these studies, subject production of Rorschach content of M, H, and P varied as a function of examiner behavior. The present study was

conducted to evaluate the effect a predetermined order of tests emphasizing animal content would have on the production of Rorschach animal content for children selected from an out-patient clinical population. The Childrens Apperception Test (CAT) and the drawing of an animal (DAA) are often included in clinical test batteries for children. The hypothesis was tested that increased animal responses would appear on the Rorschach if it was presented after projective techniques containing emphases upon drawing an animal (DAA) and telling stories about animals (CAT).

METHOD

Subjects

The Ss were selected from 59 male children between the ages of 6 and 13 years of age, referred for diagnostic evaluation in the Lincoln-Lancaster County Child Guidance Center in the years of 1963, 1964, and 1965. Subjects were matched for intelligence, psychiatric status, age, sex, examiner and total number of Rorschach responses (R). Prior to the study, all Ss were administered four subtests (Vocabulary, Information, Block Design, Similarities) of the WISC in an effort to match for

¹ The author is grateful to Marillyn Caldwell, Gary Muffley and Dr. James K. Cole for assistance in various phases of the study.

intelligence through this prorated intellectual estimate. In order to use only Ss from a homogeneous diagnostic population, Ss diagnosed by the Center's clinical team as psychotic, neurotic, brain damaged, and/or retarded were excluded from the study. Only children considered as expressing "adjustment reactions to childhood" were included in the research. One examiner administered all the tests. The final matching of the two groups for R reduced the sample size to 40 Ss, 20 Ss in each of the experimental and control groups.

Procedure

Subjects received individual administrations of the Draw-an-Animal Test, Childrens Apperception Test, and Rorschach Ink Blot Test. Two orders of presentation were used. The control group received the Rorschach first, fol-

lowed in order by the DAA and CAT. The experimental group received the DAA, CAT and the Rorschach last. The Rorschach tests were scored for animal content by a psychological assistant without knowledge of order of presentation of tests. Whole animal responses were given a value of one if they appeared in the free association portion of the protocols.

RESULTS

An inspection of Table 1 reveals that the two groups were similar in age, IQ, and total R. The mean A score for the experimental group is 4.65 and the mean A score for the control group is 3.35 ($p < .01$). The hypothesis that Rorschach animal content is greater when the Rorschach is preceded by tests emphasizing animals (DAA and CAT) is supported.

Table 1—Matching Variables and A Scores For The Control and Experimental Group

	Control Group (N=20)		Experimental Group (N=20)	
	X	SD	X	SD
Age	8.95	1.50	8.90	1.55
IQ	104.70	8.49	104.50	8.42
R	14.30	3.26	14.15	3.41
A	3.35	1.11	4.65	1.19

t=3.32*

* $p < .01$

DISCUSSION

The findings in this study support the hypothesis that the order of presentation of specific projective tests that emphasize drawing an animal (DAA) and telling stories about animal figures (CAT) can significantly increase the elicitation of Rorschach animal content by children being evaluated at a child guidance center. The results supplement and are consistent with the findings obtained by Van De Castle (1964) which show that test order significantly effects the production of Rorschach human content by adults. It is apparent

that the Rorschach's sensitivity to extraneous variables must be carefully evaluated or controlled when interpretations are made about an individual in a total evaluation procedure.

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Further Evidence of the Rorschach Card Stimulus Values For Children: A Partial Replication (and Generalizations)

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Summary: Ninety-three children from a child guidance clinic were asked to select the Rorschach card which represented their mother, their father, the card they liked best, the card they liked least, and the most frightening card. In comparing the present data with earlier findings, it was determined that no reliable selection of a parental card could be safely made. However, card X appears to represent consistently the best liked card and Card IV a negative reaction card. As in earlier studies, none of the significant results represents a majority of the group's choices for any one stimulus value.

Although the stimulus value of Rorschach cards has been investigated by a variety of techniques, very few studies lend themselves to cross study comparisons. Furthermore, most of these studies have used subject samples (e.g., college students) which differ from the typical clinical population. Despite these problems, certain general conclusions have been made concerning the stimulus value of Rorschach cards. Cards IV and VII frequently have been interpreted as symbolizing father and mother figures (Brown, 1960; Kamano, 1960; Levy, 1958; Meer & Singer, 1950; Rabin, 1959; Rosen, 1951; and Schafer, 1948). Card X consistently evokes a positive reaction while Card IV evokes a negative reaction (Ames, 1952; Sandler & Ackner, 1960; Sappenfield, 1965; Wallen, 1948; Zax & Benham, 1961; Zax & Loiselle, 1960). Although additional significant findings for the stimulus value of other cards have been found in individual studies, very few of these results have been replicated in more than one or two studies.

The parental symbolism of Cards IV and VII has not found universal support among recent studies (Charen, 1957; Engel, 1959; Hafner, 1961; Sines, 1960). For samples drawn from a clinical population, Charen (1957) found no support for the parental significance of Cards IV and VII for adults, and Hafner

(1961) found no parental significance for these cards for children. Rather, Hafner found children responding to Card III as both the mother and father card, a finding which is also supported by Engel (1959).

From the diversity of these findings, it is difficult to determine what generalizations about the stimulus value of Rorschach cards can be safely made. The present study represents an attempt to identify generalizations about the stimulus value of cards for children drawn from a clinical population by essentially attempting to replicate Hafner's results.

METHOD

Subjects

Ninety-three children, 50 boys and 43 girls, receiving psychiatric services at the Lincoln and Lancaster County (Nebraska) Child Guidance Center served as subjects for the study. The Ss represented a heterogeneous clinical sample with problems ranging from learning disorders to psychotic reactions. All of the Ss in the investigation had psychiatric difficulties that ranged from mild to severe with the bimodal diagnoses being psychoneurosis and adjustment reaction of childhood. Seventeen of the children were diagnosed as psychotic, but most of the clinical sample

were considered to be moderately to mildly disturbed as seen on a severity of disorder dimension. The mean age for the entire sample was 10.7 years with a SD of 3.4 and a range of 4 to 17 years. The mean age for the boys was 10.3 years with a SD of 3.3 and a range of 4 to 17 years. The mean age for the girls was 11.1 years with a SD of 3.6 and a range of 5 to 17 years.

Procedure

Following the individual administration of the Rorschach test, the ten Rorschach cards were placed in front

of the *S* in a predetermined, sequential order. Each *S* was asked the following questions in order: "Which one of these cards reminds you most of your mother or makes you think of your mother?"; "Which one of these cards reminds you most of your father or makes you think of your father?"; "Which one of these cards do you like best?"; "Which one of these cards do you like least?" and "Which one of these cards is the most scary or frightening?". Both the procedure and the presentation of the results closely conform to Hafner's (1961) study.

Table 1—Distribution of Choices of Rorschach Cards for Total Group (N=93)

	I	II	III	IV	V	VI	VII	VIII	IX	X	X ²
Mother Card	5	10	17	1	3	5	35	5	6	6	97.4 ^a
Father Card	3	10	20	17	6	10	7	6	7	7	27.1 ^a
Like Best	3	2	6	5	7	9	7	10	6	38	104.1 ^a
Like Least	7	6	6	28	6	8	4	2	20	6	64.1 ^a
Most Frightening	20	6	1	25	5	20	1	1	4	10	79.6 ^a

^a Significant < .01 level.

Table 2—Distribution of Choices of Rorschach Cards for Boys (N=50)

	I	II	III	IV	V	VI	VII	VIII	IX	X	X ²
Mother Card	2	3	7	0	2	3	23	3	3	4	77.6 ^a
Father Card	1	6	10	12	3	3	3	3	3	6	22.4 ^a
Like Best	1	1	4	3	4	5	3	4	2	23	75.2 ^a
Like Least	5	3	2	16	2	4	2	1	12	3	44.4 ^a
Most Frightening	12	2	1	16	2	6	1	1	2	7	47.0 ^a

^a Significant < .01 level.

Table 3—Distribution of Choices of Rorschach Cards for Girls (N=43)

	I	II	III	IV	V	VI	VII	VIII	IX	X	X ²
Mother Card	3	7	10	1	1	2	12	2	3	2	25.7 ^a
Father Card	2	4	10	5	3	7	4	3	4	1	10.4
Like Best	2	1	2	2	3	4	4	6	4	15	28.8 ^a
Like Least	2	3	4	12	4	4	2	1	8	3	18.1
Most Frightening	8	4	0	9	3	14	0	0	2	3	37.3 ^a

^a Significant < .01 level.

RESULTS

A chi-square analysis was made for the total group and by sexes. This analysis, presented in Tables 1, 2, and 3, can be compared to Hafner's (1961) tables. For the total group, Card VII was most frequently chosen as the mother card and Card III as the father card. Card X was significant as the best liked card and Card IV as the least liked card. Card IV was also most frequently chosen as the most frightening card. When the groups were broken down by sex, Card VII was still the most frequently chosen mother card for both boys and girls. For the boys, Card IV was significant as the father card. For both sexes, Card X was clearly the card liked best. The boys saw Card IV as both the least liked and the most frightening. The girls chose Card VI most frequently as the most frightening.

DISCUSSION

The present study lends only partial support to Hafner's (1961) interpretation of Card III as symbolizing parental figures for a clinical population of children. For the total group, Card III was most frequently seen as the father card. However, Card VII was most frequently seen as the mother card, a finding consistent with earlier interpretations of Card VII. It should be noted, however, that large frequencies were found for Card III for both mother and father responses for the total group. On the other hand, Card IV had the highest frequency for boys as a father symbol, and therefore partially supports the more traditional interpretation of this card. In general, the relatively low frequencies for Cards IV and VII in the Hafner study and the lack of conclusive support of Card III in the present study provide little in the way of safe generalizations concerning the symbolic significance of parental cards for children from a clinical population.

There does seem to be support for a generalization about the best liked card for this population. In both the Hafner and present study, Card X was most

frequently selected as the best liked card. This result corresponds to Ames' (1952) findings where Card X, except for certain preschool ages, was preferred by a majority of boys and girls.

In both studies, Card IV was most frequently associated with both the least liked category and the most frightening category for the total group. In the present study, but not in the Hafner study, boys chose this card as both the most frightening and the least liked. In the Hafner study, girls significantly chose Card IV as the most frightening while in the present study, girls chose Card IV as the least liked. In general, it appears that Card IV evokes a type of negative reaction which cannot be reliably broken down into more specific reactions. Similar interpretations of Card IV have been supported by other studies (Ames, 1952; Sandler & Ackner, 1960; Zax & Loiselle, 1960; Zax & Benham, 1961; Sappenfield, 1965).

Finally, it should be noted that in this study, as in previous studies, no universal stimulus value has been demonstrated that can be used in the direct interpretation of individual Rorschach protocols. For example, the largest significant frequency found in this study, 23 for the best liked card for boys, represents only 46% of the total responses in that category. It appears that without additional corroborative information, the symbolic meaning of a card for a child will more likely be different from the significant results for his group than the chance that it will correspond to the group finding.

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The Relation of TAT and Inkblot Aggressive content Scales with Each Other and with Criteria of Overt Aggressiveness in Juvenile Delinquents¹

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Summary: In order to determine if the contradictions in the literature on the relation between projective test measures of aggression and overt aggressive behavior is the result of the many different scales and criteria which have been used, the TAT and Holtzman Inkblot protocols of 76 juvenile delinquents were scored on 4 TAT and 5 inkblot aggressive content scales and the scores related to 11 different criteria of overt aggression. The data showed quite different patterns of relations depending on the scales and criteria used. While the TAT and HIT appeared to tap different aspects of the personality, there was no evidence that the HIT elicited "deeper" material or that it was less subject to distortion.

This study investigates two closely related questions which have long interested clinical psychologists and students of the projective techniques. The first is the relation of aggressive content on projective tests to overt aggression, a problem which has particular interest because it serves as a paradigm for the more basic question of the general relation between projective tests and overt behavior. The second question is the nature of the relationship between apperceptive projective tests such as the TAT and MAPS and perceptual projective techniques such as the Rorschach and Holtzman Inkblot Technique (HIT). Do these tests tap similar aspects of the personality or do they operate at quite different levels?

A number of studies have investigated the first problem, the relationship of "overt" and "fantasy" aggression. From these studies, which have been ably reviewed by Buss (1961, Ch. 8), Murstein (1963, Ch. 11) and Zubin, Eron and Schumer (1965, Ch. 9), several conclusions can be drawn:

1) Authorities differ as to the relationship which should be expected between projective test scores and overt behavior, some holding that it should be direct and others that it should be inverse.

2) Empirical studies have generally found either no significant relationships or significant direct ones. The notion of

significant inverse relations between projective test measures and overt aggression has received little empirical support (Lindzey & Tejessey, 1956).

3) There is a great deal of diversity in the findings reported. A number of factors apparently influence the relation between projective tests and overt aggressive behavior. These include: a) internal inhibitions against the expression of aggression as measured by inhibitory forces within the test protocol (Mussen & Naylor, 1954; Pittluck, 1950) and by maternal attitude toward aggressive behavior (Lesser, 1957; Weatherly, 1962); b) the guilt which the subject feels (Saltz & Epstein, 1963); c) social class differences (Mussen & Naylor, 1954); d) the degree to which the stimulus material "pulls" an aggressive response (Haskell, 1961; Kagan, 1956; Murstein, 1963, 1965P; 3) external factors in the testing situation which might influence the level of response (Megargee, 1964; Rosenzweig, 1950); f) the criterion of aggression used (Haskell, 1961); and g) whether the aggressive act is a product of excessive or inadequate controls (Megargee, 1966).

This study was supported in part by a grant from the Hogg Foundation for Mental Health. Free use of the CDC 1604 was donated by the University of Texas Computation Center. The investigators wish to thank Wayne Holtzman, Gardner Lindzey and Jon Swartz for critically reading an earlier draft of this report.

There has been less research on the second question of the relation of apperceptive and perceptual tests. Most authorities agree that the Rorschach and TAT do not elicit identical behavior samples from respondents. The general feeling is that the Rorschach, probably because it is "less structured," taps a deeper layer of the personality than does the TAT: A corollary to this is the notion that the Rorschach is less subject to conscious influence by the respondent (Shneidman, 1954).

Relatively few studies have tested these theories as they apply to projective measures of aggression. One approach has been to administer both the Rorschach and the TAT and contrast the way in which they relate to criteria of overt aggression. Haskell (1961) found that both tests related directly to overt aggressiveness in neuropsychiatric patients but that the Rorschach related to subtler criteria than did the TAT. Stone (1953, 1956), on the other hand, predicted a direct relationship between the TAT and aggression but an inverse relation for the Rorschach in Army prisoners. He found a large measure of confirmation in his data. Smith and Coleman (1956) predicted and found a direct relation between Stone's TAT scale (applied to the MAPS test) and overt aggression, but a curvilinear relation for the Rorschach using school children as Ss.

A more direct approach has been to correlate Rorschach and TAT aggressive content scales, and three studies have used this method. Murstein and Wheeler (1959) predicted and found a significant negative correlation ($-0.41, p < .01$) between the Murstein Rorschach Hostility scale and the Matarazzo TAT hostility scale in a sample of breast cancer patients while Walker (1951), found a significant positive correlation ($r = .47, p < .01$) between aggression scores on the MAPS and the Rorschach. Between these extremes, Hafner and Kaplan (1960) reported no significant relation between their scales of aggressive content for the TAT and

the Rorschach in a sample of neuropsychiatric patients.

It is likely that one reason for the diversity of these findings is the fact that there has been little uniformity in the operational definitions of either "overt" or "fantasy" aggression which have been used. A great many procedures for measuring aggressive content on the TAT and Rorschach have been devised and related to a number of criterion measures in a variety of samples. Since previous studies in the present investigators' program of research on aggression (Megargee, 1964, 1965, 1966; Megargee and Mendelsohn, 1962; Megargee, Cook, and Mendelsohn, in press) have indicated that aggression is anything but a uniform personality trait, it seems likely that this lack of uniformity in methods could easily be responsible for the observed diversity in results.

The present study was designed to help bring some integration to this field by relating a number of TAT and inkblot scales of aggressive content to a variety of criterion measures in an effort to determine how different individual scales relate to different criteria of overt aggression. It was also hoped that the relation of the TAT and inkblot scales with one another would be clarified through intercorrelations and factor analysis.

Method

Subjects

Subjects were 76 male adolescent delinquents detained in the Alameda County (California) Juvenile Hall while awaiting court hearings.² Nine of the boys had been detained for "extremely assaultive" offenses ranging from assault with deadly weapon to murder, 21 for "moderately assaultive" offenses ranging from gang fights to assault with a deadly weapon, 20 for "incorrigibility" (unruliness, defiance and unman-

² The Ss were selected and the data collected for another study on the level of control in various types of delinquents. A detailed account of the procedures including copies of the various rating scales used may be found in the monograph reporting that study (Megargee, 1966).

ageability), and 26 for property offenses such as burglary or auto theft. No members of the latter two groups had prior court records for assaultive crimes; the incorrigible group was included since it was felt that they were apt to be very high on verbal aggressiveness, a supposition which was confirmed by ratings made during detention.

The sample ranged in age from 11-1 to 17-9 with a mean age of 15-5 and included 45 Negroes and 31 whites. The mean IQ, as estimated from the Picture Completion and Information subtests of the WISC or WAIS, was 96.28 with a standard deviation of 16.89.

Testing

During the first 10 days of detention, each boy was examined by one of five clinical psychologists³ attached to the Probation Department Guidance Clinic who administered a standard test battery including a structured interview condensed from the one devised by Bandura and Walters (1959), a 9 card TAT and the Holtzman Inkblot Technique (HIT).⁴

As in the case of all referrals to the Court Clinic, each boy was told that the psychologist's purpose was to try and understand him so as to be able to assist the judge in making a disposition of his case. If the boys had been told that the psychological study was for research purposes less defensiveness might have been aroused, but the results would have had less applicability to the routine clinical situation.

³ The investigators wish to thank George Barrett, Robert Ekblad, Richard Fulk, Lionel Lazowski and Nancy Mead who did the testing.

⁴ The TAT cards used were 1, 3BM, 4, 6BM, 7BM, 8BM, 12M, 13B, 14, and 18GF. These cards, which Murstein (1963, p. 310) has described as being well distributed throughout the continuum of hostility pull, were selected because they were the same cards used by Mussen and Naylor (1954) whose investigation of the relation between overt and fantasy aggression in juvenile delinquents in a custodial setting served as a model for the present study. The measures of overt aggression in the detention units were also based on devices originated by Mussen and Naylor.

The interview, TAT and HIT were tape recorded and verbatim typescripts prepared by stenographers who also removed all identifying information before passing the transcripts on to the investigators for scoring.⁵

Scoring

Four TAT scales and five inkblot scales were selected from those which had been described in the literature. The TAT measures included: a) the Hafner and Kaplan TAT Hostility Weighted Score scale (Hafner and Kaplan, 1960); b) the Mussen and Naylor Need Aggression (*n* Agg) scale (Mussen and Naylor, 1954); c) a Stein Total *n* Agg score based on the sum of the scores on the following discrete Stein (1948) scoring categories: *n* Agg, Emotional Verbal, *n* Agg, Physical Asocial, *n* Agg, Physical Social, and *n* Agg, Destruction; and d) the Stone TAT Aggressive Content scale (Stone, 1953, 1956). The typescripts were all independently scored on each of these scales by the investigators. Inter-scorer reliability coefficients ranged from .85 to .91. Discrepancies in scoring were then discussed and the protocols rescored. In the case of any remaining discrepancies, the senior author's scoring was used in the subsequent analyses.

The HIT protocols were scored on five scales of hostile content: a) the Elizur Hostility scale (Elizur, 1949); b) the Hafner and Kaplan Rorschach Hostility Weighted Score scale (Hafner & Kaplan, 1960); c) the Holtzman Hostility scale (Holtzman, Thorpe, Swartz and Herron, 1961); d) the Murstein Rorschach Hostility scale (Murstein, 1956); and e) the Palo Alto Aggressive Content scale (Stormont and Finney, 1953).⁶

⁵ Difficulties with the recording equipment reduced the number of usable HIT protocols to 75 and the number of TATs to 71.

⁶ Although most of these scales had been devised for the Rorschach, the investigators made the assumption that they could be applied equally well to the HIT, on which greater test length and more standardized administration should result in more reliable scores.

The scoring on the Holtzman Hostility scale was done independently by the senior author and by Miss Carol Hampton, criterion scorer for the Holtzman Inkblot research group. The two sets of scores correlated .95, and in the case of discrepancies Miss Hampton's scoring was used.

The other four scales were independently scored by two-person teams of undergraduate research assistants after extensive training by the investigators.⁷ The reliability coefficients for this scoring ranged from .74 to .96. The senior author examined the scoring of each individual response on each scale and rescored responses on which the undergraduate scorers had disagreed.

Criterion measures

Since it had been hypothesized that the different test scales would not relate to all forms of overt aggression in the same way, a number of criterion measures of overt aggressiveness, both verbal and physical, were included in the study.

Several criteria of overt aggressiveness prior to arrest were available. Since these were all classificatory in nature, the Ss were divided into subgroups differing in aggressiveness or socialization and their scale scores contrasted through analyses of variance. The first criterion was the *Offense Classification* (extremely assaultive, moderately assaultive, incorrigible or property offender). Reports on *School Conduct* and *School Attendance* were available for about two thirds of the Ss; these were classified as "Satisfactory" or "Unsatisfactory" for the analyses. The final criterion was *Case Disposition*, with the group sentenced to the California Youth Authority regarded as the more antisocial and contrasted with the group treated by less stringent means.

The remaining criteria were continuous in nature and the data subjected to

correlational analysis. Overt aggressive behavior during detention was assessed through behavior checklists and rating scales which were filled out by the unit counselors at the end of the third and tenth days. From the behavior checklist two measures were derived: *Total Physical Aggression* and *Total Verbal Aggression*. A global rating of aggression was provided by the mean of the counselors' ratings of the boys on a five point, bipolar "Aggressive-Submissive" scale.⁸

Finally, four measures were derived from ratings of the structured interviews: *Verbal Aggression against Peers*, *Verbal Aggression against Authorities*, *Physical Aggression against Peers*, and *Physical Aggression against Authorities*.

The test scales were thus related to four measures of antisocial behavior in the community, three measures of aggressive behavior observed by others while in custody and four measures of aggressive habit patterns reported by the boy himself.

Results

TAT. The data indicated that there was only one criterion measure with which the 4 TAT scales had more than a chance relation. This was *School Conduct* on which the boys with Unsatisfactory reports scored significantly higher on 3 of the 4 scales (See Table 1). For the remaining 10 criteria, only one of the 40 correlations and analyses of variance attained statistical significance (See Tables 2-5). An interesting pattern which developed, however, was for the TAT scales to have direct correlations with self-reported aggression but inverse correlations with the aggression observed by the counselors.

Since studies on apperceptive methods had isolated a number of factors which could conceal the relationship between test measures and overt behavior, some additional analyses were under-

⁷ The investigators would like to express their appreciation to Betty Anderson, Bernadette Freytag, Ann Lawrence and Ken Wickett for this assistance.

⁸ See Megargee (1966) for copies of the checklist and rating scales and for a detailed account of the scoring procedures. These instruments were devised by Mussen and Naylor (1954) but were administered at different times and scored in a different fashion in their study.

Table 1—Hostility and Aggression Scale Scores
of Boys with Satisfactory
and Unsatisfactory School Conduct

TAT SCALES					INKBLOT SCALES				
		GOOD	POOR	F			GOOD	POOR	F
Hafner & Kaplan	\bar{x}	17.25	21.17	5.32*	Elizur	\bar{x}	3.76	5.35	2.89
	o	6.88	5.09			o	2.82	3.34	
Mussen & Naylor	\bar{x}	9.44	10.14	0.18	Hafner & Kaplan	\bar{x}	16.24	23.92	5.08*
<u>n</u> Agg.	o	6.02	5.41			o	10.66	12.04	
Stein	\bar{x}	2.94	4.56	4.51*	Holtzman	\bar{x}	5.41	8.32	3.80
<u>n</u> Agg.	o	1.98	2.74		et al.	o	4.73	5.25	
Stone	\bar{x}	9.19	11.89	4.85*	Murstein	—	14.65	18.84	1.64
	o	4.96	3.59			o	11.55	11.00	
Mussen & Naylor P:A Ratio	\bar{x}	1.17	1.13	0.05	Palo Alto	\bar{x}	29.45	30.79	0.15
	o	.54	.37			o	12.30	11.33	
N		16	36		N		17	34	

* $p < .05^a (F_{.05} = 4.03)$

taken. Pittluck (1950) had noted that prediction of overt aggression was improved if one took into account the themes of punishment as well as the projection of aggressive drive, and Mussen and Naylor (1954) found a noteworthy (although not significant) trend for the ratio of punishment to aggression (*P:A Ratio*) to be related to overt aggressive behavior in their sample of institutionalized delinquents.

Accordingly, the protocols were independently scored on Mussen and Naylor's Press Punishment scale by the investigators. The reliability of this scoring was .92 and the discrepancies were discussed and rescored in the same manner as the other TAT scales had been. The *P:A Ratio* was then computed and the appropriate correlations and analyses of variance carried out. No significant relations were found. It was concluded that consideration of punishment press relative to aggressive drive did not improve prediction in this sample.

A second analysis focused on parental permissiveness toward aggression, a variable which Lesser (1957) had found significantly influenced apperceptive test results. In his sample a strong direct relationship between aggressive themes and overt aggression among boys whose mothers approved of aggression was almost completely nullified by an equally strong inverse relation among boys whose mothers disapproved of aggression.

The mothers or mother surrogates of about half (37) of the boys in the sample had been given structured interviews condensed from the parent interviews used by Bandura and Walters (1959). Although these mothers represented a quite biased sample in several respects, it was possible that these interviews could provide a clue as to whether maternal attitudes were having an effect similar to that observed by Lesser. The interviews were rated by the senior author on several scales of parental permissiveness of aggressive

Table 2—Hostility and Aggression Scale Scores of Boys with Satisfactory and Unsatisfactory School Attendance

TAT SCALES					INKBLOT SCALES				
		GOOD	POOR	\bar{F}^a			GOOD	POOR	\bar{F}^b
Hafner & Kaplan	\bar{x} o	19.09 7.63	19.79 4.43	0.16	Elizur	\bar{x} o	5.78 4.12	4.56 3.20	1.51
Mussen & Naylor n Agg.	\bar{x} o	9.45 6.25	11.04 5.25	0.94	Hafner & Kaplan	\bar{x} o	22.74 14.19	21.94 11.77	0.05
Stein n Agg.	\bar{x} o	3.91 2.67	4.10 2.66	0.07	Holtzman et al.	\bar{x} o	7.83 6.34	7.59 5.08	0.02
Stone	\bar{x} o	10.61 5.49	10.34 3.59	0.04	Murstein	\bar{x} o	18.87 12.01	17.22 11.54	0.26
Mussen & Naylor P:A Ratio	\bar{x} o	1.19 .39	1.14 .42	.03	Palo Alto	\bar{x} o	33.67 11.55	29.92 11.39	1.44
N		22	28		N		23	32	

 $^aF_{.05} = 4.04$ $^bF_{.05} = 4.02$

behavior and the sample divided at the median into High Permissive and Low Permissive subgroups. The same basic statistical analyses were then performed within each subgroup, except that small cell entries necessitated the replacement of the analysis of variance with the Mann Whitney *U* Test and the abandonment of *Offense Classification* as a criterion. Of the 70 analyses, only 4 were significant, 3 of which were in a direction opposite to that expected on the basis of Lesser's work. It was concluded that it was unlikely that differing maternal attitudes were cancelling out important differences on the TAT.

Holtzman Inkblot Technique. The pattern obtained with the inkblot hostility scales differed from that for the TAT in two major respects. First, there were more significant relations between the inkblot scales and the criteria of overt aggression. Second, while the TAT related most closely to preoffense behavior, specifically *School Conduct*, the

inkblot scales related much more closely to measures of physical (but not verbal) aggression obtained after arrest in interview and through direct observation. The Hafner and Kaplan and the Murstein scales had significant direct correlations with the interview ratings of *Physical Aggression against Peers* and *Physical Aggression against Adults*, but significant inverse correlations were obtained for the Holtzman, et al. scale with the observation report of *Total Physical Aggression* and for the Elizur, Holtzman et al., and Murstein scales with the *Global Rating* of aggressiveness. (This latter pattern resembled the insignificant trend noted for the TAT scales.)

Relationship of the TAT and Inkblot scales. The data already reported in Tables 1-5 indicated some basic differences in the way the TAT and inkblot aggression scales related to the criteria of overt aggression. Further information on the relationship of the two

Table 3—Hostility and Aggression Scale Scores of Delinquents in Different Offenses Categories

Scale		Extreme Assault	Moderate Assault	Incorrigible	Property Offense	F ^a
Hafner & Kaplan	\bar{x}	19.44	20.00	21.25	20.00	0.28
	σ	6.71	6.32	5.80	5.03	
Mussen & Naylor \bar{n} Agg.	\bar{x}	9.00	9.74	11.70	9.65	0.93
	σ	3.39	5.70	5.08	4.69	
TAT						
Stein \bar{n} Agg	\bar{x}	4.33	4.21	4.90	3.30	1.50
	σ	2.24	2.49	2.92	2.18	
Stone	\bar{x}	10.22	11.32	12.08	10.48	0.55
	σ	4.90	4.97	4.79	4.11	
Mussen & Naylor P:A Ratio	\bar{x}	1.09	1.11	1.09	1.18	0.11
	σ	.26	.13	.37	.51	
N		9	19	20	23	
Elizur	\bar{x}	6.33	5.20	5.25	4.96	0.32
	σ	4.85	3.90	3.16	3.36	
Hafner & Kaplan	\bar{x}	28.78	21.70	24.59	22.65	0.66
	σ	15.36	12.90	13.43	12.86	
HIT						
Holtzman et al.	\bar{x}	10.89	8.25	8.55	7.08	1.07
	σ	7.18	5.04	5.84	5.17	
Murstein	\bar{x}	22.33	18.80	19.00	18.00	0.29
	σ	13.02	11.40	11.51	12.40	
Palo Alto	\bar{x}	36.07	32.16	31.30	29.32	0.80
	σ	10.69	12.36	10.98	11.55	
N		9	20	20	26	

^aF_{.05} = 2.74

tests was obtained by intercorrelating the 4 TAT scales, the TAT *P:A Ratio*, and the 5 inkblot scales. These correlations are presented in Table 6. In addition a factor analysis of the 10 TAT and HIT measures, the 3 measures of behavior in detention and the 4 measures of self-reported aggression was performed using a principle axis solution with a varimax rotation. The rotated factor loadings are presented in

Table 6 shows highly significant positive correlations among all four TAT aggression scales and among all 5 inkblot scales. Despite the somewhat greater reliability of the TAT scoring, the HIT scales generally correlated somewhat higher with one another, probably because the TAT measures were developed relatively independently while the inkblot scales had the Elizur (1949) scale as a common ancestor. The *P:A*

Table 4—Hostility and Inkblot Scale Scores of Boys Sent to the Youth Authority Compared with Those Who Were Not

TAT SCALES					INKBLOT SCALES				
		Y.A.	NON-YA	F _a			Y.A.	NON-YA	F _a
Hafner & Kaplan	\bar{x}	19.07	21.07	2.09	Elizur	\bar{x}	4.39	5.69	2.25
	o	5.60	5.75			o	3.89	3.40	
Mussen & Naylor	\bar{x}	9.39	10.67	1.14	Hafner & Kaplan	\bar{x}	21.75	24.20	0.59
<u>n</u> Agg.	o	4.96	4.95			o	13.46	13.10	
Stein	\bar{x}	3.61	4.47	1.99	Holtzman et al.	\bar{x}	7.21	8.56	1.02
<u>n</u> Agg	o	2.28	2.64			o	5.09	5.76	
Stone	\bar{x}	10.18	11.73	1.96	Murstein	\bar{x}	17.57	19.33	.38
	o	4.54	4.58			o	11.33	12.12	
Mussen & Naylor P:A Ratio	\bar{x}	1.23	1.05	1.62	Palo Alto	\bar{x}	29.91	32.06	.61
	o	.64	.21			o	11.39	11.53	
N		28	43		N		28	45	

^aF_{.05} = 3.98

Ratio was relatively independent of the other TAT and inkblot scales.

The four TAT aggressive content scales all had significant positive correlations with 3 or 4 of the HIT scales. It was noted that of the inkblot scales, only the Palo Alto scale had no significant correlations with the TAT scales. This suggested that productivity might underlie the obtained relations between the two tests, for the Palo Alto scale was the only one which made an attempt to control for productivity by dividing the total score by the number of responses. When similar mean scores were computed for the other inkblot scales, the magnitude of the correlations with the TAT decreased in every case and the number of significant correlations dropped from 15 to 5. The Holtzman et al scale's correlations with the TAT were least affected by this, with all 4 of its *rs* remaining significant.

Five factors emerged from the factor analysis, each of which was clearly

identifiable. (See Table 7). Factor I was defined by high loadings from the inkblot scales, Factor II by the counselors' observations of detention behavior, Factor III by the four TAT aggressive content scales, Factor IV by the ratings of aggression reported in the interviews, and Factor V by the *P:A Ratio*, indicating once again the uniqueness of this variable.

Discussion

The first goal of the present investigation was to explore the relationship of a number of TAT and inkblot aggressive content scales with a variety of criteria of overt aggression to determine if differences in the measurement of "fantasy" and "overt" aggression might account for some of the diversity noted in the literature. The results indicated that this is certainly a tenable supposition. Not only did the scales of the two tests differ in the criterion measures to which they related, but

Table 5—Correlation of Aggressive and Hostile Content Scales with Self Reports and Detention Observations of Overt Aggressiveness

TAT Aggression Scales (N=70)	Detention Observations			Self-Report Ratings			
	Total Physical Agg.	Total Verbal Agg.	Global Rating ^a	Physical Agg. vs. Peers	Physical Agg. vs. Adults	Verbal Agg. vs. Peers	Verbal Agg. vs. Adults
Hafner & Kaplan	-.22	.00	.20	.15	.20	.11	.12
Mussen & Naylor n Agg.	-.13	.01	.08	.16	.07	-.18	-.03
Stein n Agg.	-.10	.19	.06	.21	.11	.20	.14
Stone	-.10	-.02	.15	.27*	.19	.19	.16
Mussen & Naylor P:A Ratio <	.02	-.22	.07	.01	-.03	.07	-.03

*p = .05 (r .05 = .24)

Inkblot
Measures
(N=74)

Elizur	-.07	-.02	.23*	.15	.08	.04	.06
Hafner & Kaplan	-.14	.12	.19	.24*	.24*	.14	.18
Holtzman et al.	-.24*	.03	.25*	.21	.18	.19	.17
Murstein	-.20	.05	.23*	.23*	.23*	.20	.20
Palo Alto	-.12	.16	.18	.14	.13	.15	.12

* p < .05 (r = .23)
.05^a Low scores indicate greater aggressiveness

differences were also noted within tests as some scales had significant correlations with certain criteria and others did not. Investigators should therefore be cautious in generalizing the results obtained with one scale to other, apparently similar, measures. The growth of knowledge would be facilitated if future investigators either scored their protocols on a number of scales or all focused their attention on the same scale. For the TAT, the Hafner and Kaplan scale would appear to be the

best one on which to concentrate, for it had the highest loading on the TAT factor (III) and also had more significant relations with criteria of aggressiveness than did the other three scales. Among the inkblot scales, the Hafner and Kaplan, Murstein and Holtzman et al. scales appeared to be virtually parallel forms so that results obtained with one could probably be safely generalized to the others. The Elizur and Palo Alto scales had less in common with the other inkblot scales, however.

Table 6—Intercorrelation of TAT Aggressive and Inkblot Hostile Content Scales

	TAT SCALES			INKBLOT SCALES		
	Hafner & Kaplan TAT	Mussen & Naylor n Agg.	Stein Stone n Agg.	Mussen & Naylor P:A Ratio	Elizur	Hafner & Kaplan Inkblot
Hafner & Kaplan TAT	--					
Mussen & Naylor n Agg.	.68***	--				
Stein Stone	.65***	.68***	--			
Stone	.78***	.54***	.46***	--		
Mussen & Naylor P:A Ratio	.16	-.35***	-.19	--		
Elizur	.21	.23	.24*	-.03	--	
Hafner & Kaplan Inkblot	.36***	.36***	.39***	-.04	.79***	--
Holtzman et al.	.38***	.35***	.36***	-.04	.75***	.92***
Murstein	.33***	.33***	.34***	-.03	.77***	.92***
Palo Alto	.05	.13	.12	-.19	.55***	.65***
						.67***

* $p < .05$ ($r_{.05} = .24$)*** $p < .01$ ($r_{.01} = .30$)

Table 7— Rotated Factor Loadings
of TAT Aggression Scales, Inkblot Hostility
Scales, Detention Observations and Self Reports

Behavior Domain	Measure	I	II	III	IV	V	h ₂
TAT Scales	Hafner & Kaplan TAT	-.12	.14	.90	-.09	.02	.85
	Mussen, & Naylor \bar{n} Agg.	-.16	.02	.84	.03	.26	.80
	Stein \bar{n} Agg.	-.18	-.05	.77	-.13	.19	.69
	Stone	-.17	.07	.79	-.17	-.31	.79
	Mussen & Naylor P:A	.02	.06	-.17	.02	-.89	.82
Inkblot Scales	Elizur	-.85	.02	.12	-.03	-.10	.75
	Hafner & Kaplan Inkblot	-.91	.02	.27	-.14	-.03	.93
	Holtzman et al.	-.90	.12	.27	-.15	-.02	.92
	Murstein	-.92	.09	.21	-.15	-.02	.92
	Palo Alto	-.81	.04	-.10	-.02	.29	.75
Detention Observations	Total Physical Aggression	.12	-.86	-.10	-.06	-.15	.80
	Total Verbal Aggression	-.12	-.72	.00	-.25	.33	.70
	Global Rating ^a	-.20	.90	.07	.07	-.06	.85
Self Report	Physical Aggression vs. Peers	-.13	-.38	.20	-.61	-.22	.62
	Physical Aggression vs. Adults	-.11	-.05	.05	-.71	.02	.52
	Verbal Aggression vs. Peers	-.05	-.09	.13	-.67	.03	.48
	Verbal Aggression vs. Adults	-.08	-.01	-.02	-.83	.06	.71
	Percent Total Variance	24.0	13.3	17.9	13.0	7.5	

^a Low scores indicate greater aggressiveness.

Diversity in criteria of aggression was another factor which the investigators felt might account for the variety of results in the literature. The data also supported this notion. The results clearly showed that "overt aggression" is hardly a unitary variable and that the relation of "fantasy" to "overt" aggression varied widely. Depending on the criterion measure used, this relationship could be significantly positive, significantly negative, or non-existent; studies employing only one or two criteria could have obtained quite different results. For example, if only the *School Conduct* evaluations had been used, it would have been concluded that the TAT was a more valid predictor

than the inkblot test. On the other hand if only the *Global Rating* had been used it would have been decided that while the inkblot scales related closely to overt aggressiveness, the TAT scales did not.

For the clinician who might wish to use these scales in the prediction of overt aggression in the individual case, the results are quite discouraging. The paucity of significant findings, the low order of those which were obtained, and the contradictory modes of relationship to the criteria all suggest that the task of behavioral prediction with these instruments is one to be approached with a great deal of caution.

This limitation should not be interpreted to mean that the TAT and HIT are useless when it comes to predicting aggression. It may be that in another setting with a less defensive clientele these scales could be useful predictors. Or, within a custodial setting, use of these tests in a global manner by a skilled clinician might show better results, as Lindzey (1965) has demonstrated in the diagnosis of homosexuality with the TAT in a prison setting. Or it is possible the use of determinant scores in addition to aggressive content as was done by Finney (1954), Haskell (1961) and Sommer and Sommer (1958) might prove a better approach. It remains for future research to determine if this is the case.

The study was also concerned with determining, insofar as possible, the relationship between inkblot and apperceptive devices. Is it true that inkblot tests tap a "deeper layer" of the personality, that they get results opposite to those of the TAT, or that they are less susceptible to conscious distortion? The data in general and the factor analysis in particular would suggest that the two tests are separate and distinct. However they do not support the notion that they assess opposite aspects of the personality as some investigators have suggested, for if this were the case negative correlations and a bipolar loading on a single factor would have been obtained. If anything, the data would suggest that while the aspects of the personality tested by the two sets of scales are distinct, they are nonetheless positively related. This relationship is indicated not only by the significant positive correlations between the TAT and HIT scales, but also by the qualitatively similar patterns of relations with the criterion measures.

There was little support for the notion that inkblot scales tap deeper layers of the personality or that they are less subject to distortion. The criterion measures closest to awareness and most subject to distortion were the subjects' reports of past aggressive behavior, yet it was these criteria with which the

inkblot scales had the most significant positive relations while negative correlations were obtained between the inkblot scales and the observations of actual aggressive acts. Moreover, it was the TAT which related more closely to aggressive behavior in the community which can be assumed to be less distorted by defensiveness.

In terms of Rosenzweig's (1950) three levels of projective test responses, it is apparent that most of the test behavior was at Level I, the Subjective Level, at which a person responds in terms of what he feels is expected of him, with some at Level II, the Objective Level, in which the subject responds as he typically does in everyday life. It is unlikely that either the TAT or inkblot scales obtained material from Level III, the Projective Level, at which truly unconscious material might be elicited.

It is possible, of course, that this was caused by the defensiveness naturally induced by a legal setting and that different results would have been obtained in other populations. This possibility can be tested only by similar studies using other populations. While it would be a mistake to generalize the present results too freely to other settings, so too would it be an error to dismiss these rather negative findings as unique to the present sample until such studies are performed. Until more studies employing a number of test and criterion measures are carried out on a variety of populations in a number of settings, the specific relation of aggressive content scales to overt aggressive behavior, and the general relations of "fantasy" behavior to "overt" behavior and of apperceptive tests to inkblot tests will have to be considered complex, open questions which can not be answered by any simple formula.

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Thematic Aggression, Hostility-Guilt and Aggressive Behavior

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Summary: Thematic aggression, which was elicited by thematic stimuli of high and low stimulus relevance was related to the aggressive behavior of 98 Boy Scouts who socio-metrically rated one another for fighting behavior. Thematic aggression to high pull cards was related significantly ($t=2.63$) to physically aggressive behavior, but thematic aggression to low pull cards was not related ($t=.01$) to aggressive behavior. There was no relationship between self-reported hostility-guilt and fighting behavior; nor was there any relationship between hostility-guilt and thematic aggression elicited by cards of high stimulus relevance. However, hostility-guilt was significantly negatively correlated ($r=.36$) with aggressive stories told to cards with little aggressive stimulus relevance.

Lindzey (1961, p. 146) states that the most general assumption underlying projective testing is: "If an individual is presented with a stimulus situation permitting variable responses, the particular response he emits will reflect his characteristic response patterns and tendencies to response." The history of clinical interpretation and of much of the research on the TAT has been concerned with the clarification, qualification, and elaboration of that too simple assumption. One such qualification has concerned itself with the contribution of the stimulus to the elicitation of thematic stories. Murstein (1963), citing his own findings (1962) and those of Eron (1950), Lowe (1952), Mason (1952), and Starr (1960), asserts that the stimulus is by far the most important determinant of the content of a TAT response. This assertion implies that the projective hypothesis could lead to an overemphasis on personality determinants of thematic stories unless what is intended by "a stimulus situation permitting variable responses" is carefully specified.

A second qualification or extension of the projective hypothesis has concerned the relationship between the thematic expression of a motive or behavior disposition and the occurrence of the inferred behavior in a nontest situation. Murray (1943) in the *Manual* for the TAT cautioned that the relation

may be more complex than a simple isomorphic one. In the area of aggression, a number of studies (*e.g.*, Kagan, 1956; Lesser, 1957; Mussen & Naylor, 1954; Saltz & Epstein, 1963; Stone, 1956; and Weatherly, 1962) have attempted to unravel the complexities of prediction to overt behavior from TAT themes.

The relationship between overt aggression and thematic aggression to cards of varying degrees of stimulus relevance remains controversial. After reviewing the research concerned with this problem, Murstein (1963, p. 319) concluded that "cards with low or medium stimulus pull for hostility tend to differentiate persons high and low on overt aggression more readily than highly hostile cards." On the other hand, studies by Kagan (1956, 1959) indicate, as Buss (1961, p. 154) concluded in his review of TAT research with aggression, that "unambiguous pictures are the best stimuli for yielding indicants of behavioral aggression."

The difficulties involved in comparing Kagan's research with those studies cited by Murstein are manifold, since populations, thematic cards, behavioral measures, and thematic scoring systems differ. One comes closest to reconciling the results by

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noting differences in definitions of ambiguity. There is some evidence that Kagan's unambiguous cards tended toward the medium ambiguous range, according to Murstein's standards. For example, Kagan (1959) considered card 3BM to be unambiguous while Stone (1956), quoted in support of Murstein's conclusion, classified it as moderately ambiguous. But the picture remains unclear. The findings with regard to the predictive validity of low pull cards seem to stand in clear opposition, Murstein reporting that responses to these cards do relate to overt aggression, Kagan reporting that they do not.

The present study was concerned with this problem of predicting aggressive behavior from thematic aggressive stories to cards which varied in stimulus relevance or pull for aggressive themes. In addition, it investigated the relation of hostility-guilt to aggressive behavior and to the expression of aggressive stories to TAT cards varying in stimulus pull. It was predicted that thematic aggression would be directly related to aggressive behavior, and that guilt over hostility would be inversely related to both aggressive TAT themes. It was further predicted that thematic aggression to high pull cards (which are not so highly structured that they invariably elicit aggressive themes) would be more predictive of aggressive behavior than would thematic aggression to cards of low aggressive stimulus relevance. The rationale behind this prediction was the widely held notion that predictive accuracy increases as predictor and criterion become more similar.

METHOD

Subjects

Ss were 98 middle and lower middle class boys drawn from five Boy Scout Troops associated with churches in Columbus, Ohio. Their ages ranged from 10 to 17, but the mean age was

12.7, as the distribution was negatively skewed.

Procedure

Three measures were administered: six thematic cards, three moderately high and three moderately low in pull for aggressive themes; the Mosher Forced-Choice Hostility-Guilt Inventory; and a sociometric questionnaire of overt aggressiveness. All three measures were administered in one session, requiring at most one and a half hours, to an entire troop of boys.

The thematic cards were always presented first in the series in order that stories would be uninfluenced by indications about the nature of the study provided by the other measures. Cards were projected on a screen for ten seconds, and boys were allotted five minutes to write their stories. Standard TAT instructions were employed. The Mosher Forced-Choice Guilt Inventory was administered second so that the self-report of guilt over aggression would be uncontaminated by a S's awareness that he would be rated by friends on his aggressive behavior. Sociometric questionnaires, which most obviously depicted the nature of the study, were always presented last.

To insure full cooperation, Ss were told at the outset that their troop would receive \$1.00 for each boy who participated satisfactorily in the study. After being assured that their responses would remain completely confidential to the examiner, the boys were assigned numbers so that their work could never be identified by name.

Measures

Thematic Cards. The thematic cards employed in the study were constructed by Lesser for the investigation of aggression with young boys. These cards, each of which depicts two young boys, were minimized for the representation of motives other than aggression and eventually scaled by Lesser through an application of Guttman's scaling technique (1958b). From Lesser's battery of ten cards,

an attempt was made to select three cards which, according to his sample, pulled aggressive themes approximately 25% of the time (low pull cards), and three cards which evoked aggressive responses approximately 75% of the time (high pull cards). A description of the selected cards and their percentage values for the elicitation of aggressive themes is as follows:

Cards of low stimulus relevance for aggression:

1. One boy is sitting behind the other boy in a classroom and is leaning toward him. (12%)
2. One boy is sawing a piece of wood and the other boy is leaning on a fence between them, talking to him. (21%).
3. One boy is holding a basketball and the other boy is approaching him with arms outstretched. (32%).

Cards of high stimulus relevance:

4. One boy is stamping upon an ambiguous object and the other boy is reaching for the object. (67%).
5. One boy, with fists clenched, is staring at the other boy who is sitting, head bowed, on a box. (79%).
6. One boy is walking down the street and the other boy, with fists clenched, is glaring at him. (85%)

To quantify thematic aggression, a three point scoring system was devised after careful analysis of the aggressive themes of 40 pre-test Ss. This scoring system was based upon a definition of aggression similar to that employed by Buss (1961): that aggression is any response, involving verbal or physical expression, which delivers noxious stimuli to another person. As much as possible, only aggression of a hostile, destructive type was scored, as opposed to general assertiveness and competitive strivings of primarily a nonhostile, constructive nature. In all cases, the concern was solely with aggression both instituted by a boy and directed toward a peer. In summary form, the criteria for the assignment of each score were as follows:

1. a. There is no reference to aggression, either verbal or physical, which is undertaken by a boy and directed toward a peer.

b. The aggressive act depicted is obviously accidental.

c. Aggression or instigation to aggression is not the central plot of the story, but is mentioned with the context of another, more dominant theme.

d. A very mild aggressive act occurs within the story.

e. A mild to moderate verbal battle is depicted.

2. a. An aggressive act, which is neither very mild nor very violent, occurs in the story, but is not extensively elaborated. Themes of this category are predominant fighting themes where, in general, the definitive statement of fighting is found.

b. An intense verbal battle is portrayed.

3. a. The aggressive act is a violent one, capable of doing physical or severe psychological injury.

b. An aggressive act is elaborated in some detail. The act is intensely described, performed or reacted to with strong emotionality, or accompanied by persistent hostile feelings.

Generally, then, this scoring system for thematic aggression included consideration of the kind and intensity of depicted aggression, directness of aggressive expression, and the importance of aggression to the central plot of the story. The Pearson interscorer reliability coefficients of two judges, as established for 25 protocols proportionately and randomly selected from each troop, was .94 for themes to high pull cards and .99 for responses to low pull cards.

The Mosher Forced-Choice Hostility Guilt Inventory. Guilt scores were obtained from the Hostility Guilt subscale of the Mosher Forced-Choice Guilt Inventory. The inventory (Mosher, 1966) was constructed for a college population and consists of three measures of three aspects of guilt.

Mosher reported a multitrait-multi-method matrix analysis of the measures which provided evidence of convergent and discriminant validity and reliability. The forced-choice Hostility-Guilt scale, which was slightly modified for use with younger, less educated Ss, consists of 27 stems of incomplete sentences, each stem preceding two completions equated for social desirability. Following are two sample items:

When anger builds inside me. . .

A. I usually explode.

B. I keep my mouth shut.

Fighting. . .

A. is always a thrill.

B. disgusts me.

Similar items sample feelings and behaviors further associated with anger, and also explore attitudes toward swearing, arguments, hating, killing in war, and killing in self-defense. Alternative responses receive weighted scores ranging from +2 to -2. The Ss employed in this study seemed to have no difficulty understanding the items or choosing a completion.

Sociometric questionnaire. Overt aggression was measured by means of two sociometric questions which dealt with physical aggression. They requested the nomination of three boys who fight the most and three boys who fight the least. Scores of +3, +2, and +1 were assigned respectively to the very most, next most, and third most aggressive nominees, and scores of -3, -2, and -1 were assigned to the nonaggressive nominees. The behavioral aggression score for each boy was obtained by adding his weighted nominations and dividing by the number of boys in his troop.

RESULTS

The distribution of the Ss on hostility-guilt and total TAT aggression was divided at the median to form a fourfold table. The means, standard deviations, and *N*'s for aggressive behavior as measured by the sociometric measure are presented in Table 1. Table 2 presents the results

of an analysis of variance which tested the significance of the differences in aggressive behavior as a function of thematic aggression and hostility-guilt. From Table 2 and Table 1 it can be seen that boys who tell aggressive TAT stories engage in significantly more physically aggressive behavior according to the sociometric nominations of their peers. Contrary to expectations, hostility-guilt is not significantly related to physically aggressive behavior.

To ascertain the predictive usefulness of aggressive themes told to high pull cards in comparison to low pull cards, aggressive themes were totaled separately for the two types of cards. Ss were divided at the median of the distribution of aggressive themes to high pull cards, and a *t* test ($t=2.63$; $df=96$; $p<.02$) indicated that boys who told aggressive stories to high pull cards ($M=1.63$; $SD=.68$) engaged in significantly more fighting behavior than boys who did not tell aggressive stories to high pull cards ($M=1.31$; $SD=.56$). A similar *t* test ($t=.01$; $df=96$; *n.s.*) comparing the fighting behavior of boys who did not tell aggressive stories ($M=1.45$; $SD=.69$) was insignificant. The means were identical to two decimal places. Thus, aggressive themes to high pull cards significantly predicted overt aggression, while themes to low pull cards did not. Of the three high pull cards, the most predictive of overt aggression was the 79% pull card ($T=1.83$; $df=96$; $P<.07$) as scaled by Lesser (1958b). With the sample used in this study, the 79% pull card elicited slightly less aggression than the 67% pull card, and thus was the lowest of the high relevant cards.

Finally, thematic aggression to high pull cards was correlated with hostility-guilt and yielded an insignificant positive Pearson correlation of .11. However, there was a significant negative correlation between aggressive themes to low pull cards and hostility-guilt ($r=-.36$; $df=96$; $p<.01$).

Table 1

Means Standard Deviations and N's of the Sociometric Ratings
of Aggressive Behavior for Thematic Aggression and Guilt Groups

Group	Mean	Standard Deviation	N
High TAT Aggression			
High Guilt	1.54	.63	25
Low Guilt	1.57	.70	27
Low TAT Aggression			
High Guilt	1.16	.40	24
Low Guilt	1.43	.73	22

Table 2

Analysis of Variance of Aggressive Behavior as a Function
of Thematic Aggression and Hostility-Guilt

Source	<i>df</i>	<i>M. S.</i>	<i>F</i>
Hostility-Guilt (A)	1	.52	1.38
TAT Aggression (B)	1	2.32	6.19*
A X B	1	.36	.95
Error	94	.38	

* $p < .05$, two-tailed

DISCUSSION

The present study has demonstrated a significant relationship between thematic aggression and sociometric ratings of fighting behavior in adolescent boys. An analysis of the contribution of cards of high and low aggressive stimulus relevance revealed that aggressive themes to high pull cards significantly predicted overt aggression, while themes to low pull cards did not. This finding supports the position of Kagan and Buss, and stands in opposition to Murstein's position that cards of both low and medium stimulus relevance are good predictors to overt behavior. It may be that some of the high pull cards employed in this study would be seen by Murstein as medium pull cards, since they were not so highly structured

that they consistently elicited aggressive themes. The most predictive high pull card might well be considered a medium ambiguous card, since it pulled less aggression than the 67% pull card and was the lowest of the high pull cards used. With all of the high pull cards employed, however, aggressive response pull exceeded nonaggressive pull. That is, aggressive stories were told by over 50% of the Ss. None of the cards eliciting aggressive themes from less than 50% of the sample (low pull cards) predicted aggressive behavior.

The high pull cards consistently depicted cues for aggressive responses, and thus were quite similar to the criterion behavior being measured. Low pull cards, on the other hand, were minimally suggestive of aggressive be-

havior, and thus minimally related to the criterion situation. The results therefore suggest that to maximize prediction from thematic cards, one must employ pictorial stimuli which are quite similar to the behavior under consideration. The optimal amount of similarity between predictor and criterion has yet to be determined. It seems that if the aggressive cues depicted thematically are too intense, too many Ss will report aggressive stories out of respect for the stimulus properties. Yet this study does suggest that some fairly specific cues must be depicted.

Hostility-guilt was significantly negatively correlated with aggressive themes told to low pull cards, but was not correlated with themes to high pull cards. In the only previous comparison of self-reported guilt and thematic aggression, Saltz and Epstein (1963) found some evidence that guilt was inversely related to pictures of high stimulus relevance, but was unrelated to pictures of low relevance. However, the authors pointed out that their findings were equivocal and needed further verification. The present results are contrary to Saltz and Epstein's marginal finding. These results suggest that if one maximizes the predictive utility of cards by insuring the similarity of thematic cues and the criterion situation, there will be no relationship between aggressive themes and guilt. However, if one minimizes aggressive cues and minimizes predictive utility, an inverse relationship between aggressive themes and hostility-guilt will result. One possible explanation of this finding is that thematic stimuli which suggest fighting themes are unrelated to guilt because the locus of responsibility is the stimulus or the situation which presents aggressive cues, rather than the person. When thematic pictures are not suggestive of aggressive interaction, however, perhaps only individuals who are low in guilt over hostility are free to ac-

cept a personal responsibility for producing aggressive stories.

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Stimulus Factors in the Relation between Fantasy and Behavior.¹

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Summary: An investigation of the relation between aggressive fantasy and aggressive behavior in normal 10- and 13-year-old boys was conducted. A peer-rating technique was used to assess aggressive behavior, and three different projective tests (the Rosenzweig P-F Test, the TAT and the Rorschach) were used to elicit aggressive fantasy. The TAT cards were chosen with particular reference to their aggressive stimulus relevance. The results supported the assumption that stimulus factors affect the relation between fantasy and behavior, showing that of the three projective tests only the Rorschach has a direct relation to overt behavior, and that in the case of the TAT only Card 18BM, classified as having high aggressive stimulus relevance, differentiates significantly between children who are and children who are not behaviorally aggressive with regard to the amount of aggressive fantasy expressed.

The question of the relation between overt behavior and the fantasy elicited by projective tests is one that still troubles clinical psychology, in spite of many important contributions on the subject in recent years (e.g. Lazarus, 1961; Haskell, 1961; Murstein, 1965). This is particularly true of work with children, firstly because there has been less published research, and there are therefore fewer data to be obtained in this area, and secondly, because it cannot be assumed *a priori* that results obtained with adults will hold when applied to children.

Most of the work that has been done on the relation between fantasy and behavior in children has concerned itself with aggression, yet even in this sphere many studies have reported contradictory results. While Mussen & Naylor (1954), Kagan (1956) and Weissman (1964) have reported a direct relation between aggressive fantasy and aggressive behavior, Smith & Coleman (1956) have argued for the existence of a curvilinear relation, showing that low overt aggression was related to both high and low measures of fantasy ag-

gression, while high overt aggression corresponded to the middle range of fantasy aggression scores. Yet again Symonds (1949), Jensen (1957) and McNeil (1962) have all reported minimal relations between overt and fantasy aggression.

It has become clear that many of the contradictory results are a function of a number of important variables, all of which appear to affect the relation between fantasy and behavior. For example, Mussen & Naylor (1954), by studying lower-class Negro juvenile delinquents, were able to interpret their results in terms of the class variable; Jensen (1957) distinguished different types of overt aggressive behavior, thereby emphasizing the importance of the behavior variable; Lesser (1957) showed that maternal attitudes to aggression have considerable influence on children's relations between aggressive fantasy and aggressive behavior; finally, Lesser (1958) considered the inhibitory factors, indicating the importance of the anxiety variable in the relation between fantasy and behavior.

Recent work concerning projective techniques, for example that of Kagan & Lesser (1961), Murstein (1963) and Epstein (1966), has paid particular attention to the further variable of the stimulus, and from this work it has become abundantly clear that full consideration of this variable is an essential

¹ The present article is based on a larger study (Coleman, 1966), submitted in fulfillment of the requirements of the degree of Doctor of Philosophy at the University of London. The author wishes to express his gratitude to his supervisor, Dr. Cecily de Monchaux, for her stimulation and encouragement, and to Dr. G.S. Lesser, for permission to use his peer-rating technique.

element in any adequate study dealing with projective fantasy. Yet of the above-mentioned studies which have been concerned with the relation between fantasy and behavior in children, many have used different projective tests. Not one of the studies has used more than one projective test at a time. Finally, of those who employed the TAT or a similar test, only Kagan (1956) attempted to control for the stimulus relevance of the cards used.

The present study was designed to investigate the effects of different projective stimuli on the relation between aggressive fantasy and aggressive behavior. According to Murstein (1963, Ch. 7), two different dimensions of the stimulus variable may be distinguished: On the one hand, there is the dimension of *structure* which refers to the determinate or indeterminate nature of the physical components of the stimulus, and, on the other, there is the dimension of *ambiguity* which concerns the certainty or uncertainty of meaning in the situation portrayed by the stimulus. Both these dimensions have been included in the present study, stimulus structure being controlled by the use of three different projective tests, while stimulus ambiguity was controlled by using TAT cards which differed in aggressive stimulus relevance.

Method

Subjects

Subjects were 72 normal 10- and 13-year-old boys from local authority schools in the East Sussex area. They were largely from lower and lower-middle class homes, and were all of average or above average verbal intelligence on one of the National Foundation for Educational Research Verbal Reasoning tests. Four different schools were used, one whole class in each of the four schools being tested.

Materials

The aggressive behavior of the children was assessed with a peer-rating technique developed by Lesser (1957, 1958, 1959). The test consists of a booklet containing 20 written descriptions of

children (e.g. "Here is a boy who starts a fight over nothing"), and the subject is asked to fill in under each item the names of those children in his class who best fit the description. Of the items, 13 are concerned with aggression (in turn divided into Provoked Physical Aggression, Unprovoked Physical Aggression, Outburst Aggression, Indirect Aggression and Verbal Aggression) and 7 are filler items.

Aggressive fantasy was derived from three different projective tests, the Rosenzweig Picture-Frustration Test (Children's Form), the TAT and the Rorschach. These tests were considered to vary in structure, ranging from the Rosenzweig with a high degree of structure, to the Rorschach in which the structure of the stimuli is only minimal. In the case of the Rosenzweig and the Rorschach the full form of the test was used, while in the case of the TAT only six cards were used, divided into two sets of three according to Murstein, David, Fisher, and Furth's (1961) scaling for hostility relevance. Cards 15, 18BM and 3BM were chosen as having high aggressive stimulus relevance, while Cards 1, 7BM and 17BM were considered to have neutral stimulus relevance.

Procedure

Each child was tested individually by the author during a school session. Responses to the TAT and the Rorschach were tape-recorded in all cases.

Scoring

The scoring for the peer-rating technique was as follows. Every time a child was nominated for any particular item by any child, including himself, he obtained a score of 1. His final score was equivalent to the total number of nominations from all members of his class. Subjects obtained scores in each of the five categories of aggressive behavior mentioned above, in addition to which two further scores were computed. The Combined Aggression Score represented the sum of the scores for all five categories, and the Nominated Fighting Behavior Score consisted of the Provoked and Unprovoked Physical

Aggression scores combined.

With regard to the scoring of aggressive fantasy, separate scores were derived from each of the three projective tests. On the Rosenzweig only the Extrapunitive responses were scored, as defined by Rosenzweig, Fleming, and Rosenzweig (1948), each child's score being expressed as a percentage of the total number of responses given in the Rosenzweig booklet.

On the TAT only one type of aggressive fantasy was considered, that in which the aggression derived from the central figure in the story and was directed outwards against a specified person or object (McNeil, 1962). This aggressive fantasy was divided into "primary aggression," defined as "killing," for which 2 points were given, and "secondary aggression," defined as "robbery, injury, attack, destruction or any other physically harmful behavior," for which 1 point was given. Scores were obtained by a simple addition of points.

Finally, with regard to the Rorschach, only Aggressive Content was used, the scoring system for this being based on the one developed by Elizur (1949). Responses were divided into two types: Aggressive Movement (e.g. fighting, stalking, burning, attacking), and Aggressive Objects (e.g. a gun, an arrow, a bomb, a missile). A score of 1 was given for any response falling into either of these two categories, and a percentage score was obtained by dividing the total number of responses by the total number of Aggressive Content responses.

Interjudge agreements were computed for all the aggressive fantasy scores, and ranged from 80% to 93% agreement.

Results

Three types of aggressive behavior score, all of which have been discussed above, were utilized in the analysis of the data: these were Combined Aggression, Nominated Fighting Behavior, and Verbal Aggression. In Tables 1-3 the Pearson Product Moment correlations between these scores and the aggressive

fantasy scores from the three projective tests are set out. The results in Table 1 show that although the Combined Aggression score does not correlate in any of the four schools with either Rosenzweig or TAT aggressive fantasy, it does correlate positively and significantly with aggressive fantasy derived from the Rorschach in three of the four schools. Tables 2 and 3 show similar though weaker trends, for in the case of Nominated Fighting Behavior only two of the four relevant correlations are statistically significant, a third being in the expected direction but not reaching significance. In the case of Verbal Aggression only one of the four correlations between this score and Rorschach aggressive fantasy reaches the level of statistical significance.

In Tables 1 and 2 it may be noted that the correlation coefficients for School D are very considerably lower than those for the other schools. No explanation has been found for this. All relevant variables, such as age, intelligence and social class, were controlled, and the author knows of nothing which differentiates School D from the other three schools.

Table 1—The Correlations Between The Combined Aggression Scores and Aggressive Fantasy As Expressed On The Three Projective Tests In The Four Schools.

	Schools			
	A	B	C	D
Rosenzweig	.12	-.18	.03	-.39
TAT	-.23	.37	.22	-.21
Rorschach	.65*	.62*	.67*	.03

* $P < .01$

Table 2—The Correlations Between Nominated Fighting Behavior and Aggressive Fantasy As Expressed On The Three Projective Tests In The Four Schools.

	Schools			
	A	B	C	D
Rosenzweig	.13	.00	.03	-.24
TAT	-.24	.20	.27	-.18
Rorschach	.73*	.39	.67*	.05

* $P < .01$

Table 3— The Correlations Between Verbal Aggression Scores and Aggressive Fantasy As Expressed On The Three Projective Tests In The Four Schools.

	Schools			
	A	B	C	D
Rosenzweig	.06	-.32	-.16	-.34
TAT	-.12	.29	-.14	-.06
Rorschach	.33	.73*	-.07	.02

* = $p < .01$

For the purposes of Table 4 the sample was dichotomized into all those in each of the four schools who were on or above the median on the Nominated Fighting Behavior Score (F), and all those who were below the median on this score (NF). In this Table *chi square*, with the Yates correction for continuity being applied where expected cell frequencies were less than 10, has been used to show the significance of the proportions of F and NF children who express aggressive fantasy on each of the six TAT cards. The results indicate that on only one of the TAT cards (18BM) is there a significant difference between the two groups of children, for on this card, which is one of those classified as having high aggressive stimulus relevance, significantly more F than NF children express aggressive fantasy.

Table 4— The Significance Of The Differences Between The Proportions Of F and NF children Who Express Aggressive Fantasy On Each Separate TAT Card.

Cards With	Chi	P
High Aggressive	Square	
Stimulus-Pull		
18BM	4.00	<.05
15	0.00	N.S.
3BM	0.00	N.S.
Cards With		
Neutral		
Stimulus-Pull		
1	1.64	N.S.
7BM	0.00	N.S.
17BM	0.43	N.S.

Discussion

In view of the fact that Lesser's peer-rating technique provided scores for various different categories of aggressive behavior, it was considered worthwhile to investigate the possibility that aggressive fantasy might be more closely connected with verbal rather than physical aggression. However, the results in Tables 1-3 show clearly that this is not so. On the contrary it appears that the more all-inclusive the aggressive behavior category, the more strongly it correlates with Rorschach aggressive fantasy. This evidence supports the conclusion that the aggressive fantasy which is expressed in response to a projective test such as the Rorschach is an expression of a general aggressive disposition rather than of one specific form of aggressive behavior.

In considering the findings of the present study which apply specifically to the Rorschach, it is important to note that although the only previous research with children which employed the Rorschach (Smith & Coleman, 1956) reported a curvilinear relation between aggressive fantasy and aggressive behavior, such a result must be considered equivocal because of the special nature of the subjects used (children in a remedial reading center). Nonetheless almost all similar studies with adults, using college students, prisoners and psychiatric patients, have reported direct relations between Rorschach aggressive fantasy and aggressive behavior (e.g. Gorlow *et al.* 1952; Stormont & Finney, 1953; Sjostedt, 1955; Kane, 1955; Sommer & Sommer, 1958). The present study shows a similar direct relation between Rorschach aggressive fantasy and aggressive behavior in normal children, though it also shows that aggressive fantasy derived from the other two projective tests bears little relation to overt aggressive behavior.

The above results would seem to support the assumption that the projective stimulus does affect the relation between fantasy and behavior. Firstly,

the effects of stimulus structure may be considered in the following way: both the Rosenzweig and the TAT are relatively highly structured tests in which the stimuli themselves can be considered to exercise a not inconsiderable influence over responses of one particular type, such as themes of aggression. Thus, in the case of normal children, those who are and those who are not behaviorally aggressive may be expected to express approximately similar amounts of aggressive fantasy, because their aggressive responses will largely be a function of the well-defined stimulus situation. On the other hand, the Rorschach stimuli, which are relatively unstructured, do not exercise such an effect on aggressive responses, and therefore permit subjects to respond differentially according to the strength of the aggressive drive or aggressive response disposition.

Secondly, the effects of stimulus ambiguity may be seen in the fact that only on a TAT card classified as having high aggressive stimulus relevance was any significant difference shown between the two groups of children with regard to the amount of aggressive fantasy expressed. This finding corroborates the result reported by Kagan (1956) and supports his conclusion that the greater the aggressive stimulus relevance of the card, the greater the inhibition which will be manifested by those children who are not behaviorally aggressive. Nevertheless, although Card 18BM may be considered to have the greatest stimulus relevance of those used in the present study, in view of the fact that the other two cards classified as having high aggressive stimulus relevance did not show a similar effect, the conclusion must for the present be regarded as tentative. However, the combined evidence from both Kagan (1956) and the present study indicates without doubt that stimulus relevance cannot be ignored in future research of this kind, and further points to the conclusion that a direct relation between aggressive behavior and TAT aggressive fantasy in children is likely to be

a function of the use of TAT cards with uniformly high aggressive stimulus relevance.

It may be felt that the above discussion contains a contradiction, for on the one hand it has been argued that a direct relation between fantasy and behavior is obtained with the Rorschach because of its low degree of structure, while on the other hand it has also been argued that a direct relation between fantasy and behavior will occur if TAT cards with high stimulus relevance are used. These two arguments are not incompatible; rather they illustrate that different conditions may sometimes produce the same result.

In the case of the TAT it is proposed that a high degree of stimulus relevance will cause anxiety, and therefore inhibition, in those children who are not behaviorally aggressive. This is supported by the fact that the failure of these children to respond with aggressive themes to a card of high aggressive stimulus relevance involves a distortion of the reality properties of the card. In the case of the Rorschach, however, it seems most probable that the unstructured nature of the stimuli does not cause inhibition, but allows a freedom of response which makes it possible for the aggression normally expressed in overt behavior to be reflected in the material elicited by this test.

Looking back over numerous explorations into the relation between fantasy and behavior it seems that all too often the concept of fantasy has been treated as a single entity. It has been implicitly assumed that what constitutes, for example, the aggressive fantasy of an individual may always be elicited, providing that a sufficiently wide range of stimuli are used, and that this fantasy can be assigned a quantitative value. Results such as those of the present study show only too clearly that this is not so. Aggressive fantasy is something that is elicited as a direct function of the stimulus used. While in some circumstances most individuals will express aggressive fantasy, in others only

a few will do so. Furthermore, even if the same proportion of a group expresses aggressive fantasy in two different stimulus situations, it will not be the same members of the group who express this fantasy on both occasions. Thus the fantasy itself cannot be fully understood unless equal consideration is given to the circumstances in which it is elicited. It is for this reason that stimulus variables must play an integral part in any further investigations of the relation between fantasy and behavior.

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A Comparative Need Analysis of Immediately-Recalled Dreams and TAT Responses¹

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Summary: Thirteen Ss were each administered six TAT pictures in the usual manner. Approximately one week later, each S spent one night in an EEG lab especially equipped for dream collection. Shortly after various physiological measures indicated that the S was dreaming, he was awakened and asked to report the dream. Both dreams and TAT responses were scored by a form of Murray's need-press system. The evidence suggests that the dreams and TAT tended to show some of the same needs for each S, but that other needs were expressed in only one of the two forms. Affiliation and play were positively correlated in their appearance in both dreams and TAT; dominance showed a negative correlation (all significant at or beyond .05).

The purpose of this study is two-fold: 1. to demonstrate that content studies of immediately-recalled dreams are feasible, 2. to shed some light on the relationship between TAT responses and dreams by inquiring to what extent these two projective media elicit the expression of similar needs in the same subjects.

The literature contains few studies comparing TAT stories with dreams (Sarason, 1944; Gordon, 1953) despite considerable confusion and uncertainty about the general relationship between TAT responses and fantasy. Many workers have been content to assume that the TAT measures "fantasy", following Morgan and Murray's original publication (1935). Holt (1961), on the other hand, has prepared, on a logical basis, a list of four areas of similarity and fifteen areas of difference between TAT responses and true fantasy. The differences for the most part stem from the consideration that the TAT is a set task with adaptive requirements whereas fantasy arises more spontaneously and effortlessly, generally in an altered state of consciousness. On the basis of his discussion, Holt concludes that a TAT story is not a fantasy. He would confine the meaning of "fantasy" to its usual sense, namely "a product of

uncontrolled imagination" (Holt, 1961, p. 36).

One of the most widely utilized sources of an individual's fantasies has been his dreams. The paucity of studies comparing dreams and TAT responses has probably been partly due to the difficulty associated with obtaining good dream data, unbiased by factors such as selective recall and personality characteristics of dream recallers as compared to non-recallers (Lachmann, Lapkin, and Handelsman, 1962; Schonbar, 1959, 1961; Tart, 1962). Fairly recently, objective physiological indicants of dreaming have been developed (Aserinsky and Kleitman, 1953; Dement and Kleitman, 1957). Using these independent indicants of dreaming one can determine when, during the course of the night a sleeping subject is dreaming. By rousing him during these times it is possible to obtain a fairly complete sample of the subject's nightly dreaming. Furthermore, the dreams are generally reported in vivid detail because the subject is in the midst of the dream experience.

¹ The authors wish to express their appreciation to Dr. Marco Amadeo, of Montreal's Jewish General Hospital, for providing instruction and equipment for the method of dream collection used here. Our appreciation goes, also, to the Jewish General Hospital for their cooperation in providing facilities for this research.

rience when he is awakened. This methodological improvement in collecting dream data has made the question of the relationship between TAT stories and fantasy more readily researchable.

METHOD

Subjects

Thirteen subjects, eight male and five female, averaging twenty-one years of age were employed in this study. They were all volunteers, under no inducement beyond their own interest and curiosity. The sample consisted of undergraduate and post-graduate students and graduates.

The experimenter administered six TAT pictures (10, 12M, 12BG, 13G, 16, 19) in the standard manner to each subject and recorded the responses on tape. Approximately one week later, the subject reported at his bedtime to an EEG lab which had been specially equipped for dream collection. The experimenter attached EEG, EOG (electrooculogram), and EMG (electromyograph) leads to the subject's face and scalp in the prescribed manner and allowed him to sleep in the bed provided for him. The physiological measures used as an indication of dreaming were the appearance of emergent Stage One EEG, bursts of rapid eye movements, and absence of muscle potential in the chin. A few minutes were allowed to elapse following these signs, and then the experimenter entered the sleep chamber and abruptly awakened the subject. The subject's report of his previously ongoing dream was recorded on tape. He was then permitted to return to sleep until the physiological criteria again indicated dreaming. The dream data was collected in this way throughout an entire night, of eight hours, for each of the thirteen subjects.

RESULTS

Seventy-eight TAT stories (six for each subject) and thirty-four immediately-recalled dreams (averaging approximately two and a half per subject) were collected. Scoring was carried out

as follows. The experimenter scored the manifest content of the TAT stories and dreams for presence only, scored plus 1, of any of a list of twenty of Murray's needs. Hall and Lindzey's (1957) text provided the definitions of the twenty needs used. No distinction was made between "need" and "press." A subject's overall score for any given need on the TAT or dreams represents the number of stories or dream reports in which the need was identified.

To test the extent to which the TAT and dreams were evoking similar needs in the same subject, Pearson product-moment correlations were computed between the subjects' scores on the TAT and in the dreams for each need. Five significant correlations were obtained. These are shown in Table 1. Two of these, deference and sentience, were dropped from consideration because of their very low frequency of occurrence among subjects. Since need scores based on six TAT stories were being correlated with need scores based on dreams of variable number it was necessary to inquire whether the experimenters had not, in fact, obtained results based on a relationship between TAT need scores and number of dreams rather than dream need scores. No significant correlation between subjects' TAT need scores and number of dreams was found.

The correlations between the appearance of the significantly correlated needs in a subject's TAT and dreams were: affiliation .65; dominance -.63; and play .56. The negative correlation for dominance does not reflect a uniform tendency for all subjects to express more dominance in one medium rather than the other. Subjects in general tended to use both media about equally to express this need, but individual *Ss* tended to express it in only one of the media. Some support for the stability of the findings presented here on affiliation and play derives from a study by Grotz (1950). He compared TAT stories and manifest dream narrations, informally collected, using Combs' scoring system. He reports that both media are used extensively by the individual

Table 1—Significantly Correlated Needs Appearing In Individual Subjects' Dreams and TAT Stories.

Need	r	p
affiliation	.65	<.02
dominance	-.63	<.05
play	.56	<.05
deference	.64	<.02
sentience	.64	<.02

to express among other things the desire to be with people and the desire to play and do for its own sake.

In the present study an attempt was made to check interscorer reliability. The second scorer was an undergrad-

CONCLUSIONS

Content studies of immediately-recalled dreams, with their fuller content, seem practical. An approximate check of reliability suggests that they can be scored, using Murray's needs, with a reliability comparable to the TAT. By selecting among the needs it seems possible to choose some which would have potentially very satisfactory reliability.

The evidence presented here suggests that the TAT and dreams tend to elicit some similar needs in the same subject but it seems likely that more are dissimilar. Further study of this area seems well warranted. It would be highly desirable to know if these results are replicable. Perhaps some pattern could be discerned among the

Table 2—Needs Scored With Above Chance ($p < .05$) Reliability.

Pearson r	Needs Scored In Dreams	Needs Scored in TAT
.50-.59	Dominance	Dominance, Achievement, Exhibition, Order, Succorance
.60-.69	Nurturance, Play	
.70-.79	Sentience	Deference
.80+	Affiliation, Aggression	Affiliation, Abasement
	Achievement, Defenceance	
	Exhibition, Understanding	Play, Sex

uate student, with no previous experience with TAT or fantasy material. The resulting estimate of reliability is therefore rather conservative. Interscorer reliabilities in the form of Pearson r 's were computed for each need in both the TAT and dreams. That is, the reliability with which each need could be scored in the TAT and in the dreams was obtained. The average reliability across the twenty needs in the TAT and dream data was .52 and .53 respectively. In both projective media, reliability in scoring individual needs varied widely. Ten needs out of the twenty in both the TAT and dreams (five in common) were scored with above chance reliability ($p < .05$). These are shown in Table 2. The reliability coefficients ranged from .55 to .93.

needs which tend to correlate across individuals' dream reports and TAT stories. Further work would probably benefit by differing selections of TAT cards, perhaps utilizing Eron's normative data on the TAT (Eron, 1950) to select cards which elicit the broadest number of themes.

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The Effects of Subliminally Presented Drive Stimuli on the Cognitive Functioning of Schizophrenics¹

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Summary: This was an investigation of the effects of subliminally presented drive related stimuli on the cognitive performance of 30 hospitalized schizophrenics. Subjects were seen individually for three sessions in a balanced design. In each session, an assessment was made of the effects of an aggressive, libidinal, or neutral stimulus on performance in tests of arithmetic, similarities, and picture arrangement (patterned after parts of the Wechsler Intelligence Scales). Assessments were made of ego pathology and cognitive deficit and the effects of the drive conditions were compared with those of the neutral condition. The results obtained support the views that: (a) the stimulation of drive derivatives in schizophrenics exacerbates aspects of their ego impairment; (b) the method described allows for the experimental study of the effects of drive activation on ego functioning.

In a number of recent studies (Silverman and Silverman, 1964; Silverman, 1965b, 1966; Silverman and Goldweber, 1966), a new experimental method has been utilized to study the effects of the activation of drive derivatives on ego functioning. Drive related and neutral stimuli have been exposed through a tachistoscope at a subliminal level and subjects have been asked to respond to Rorschach-type ink blots much as they would in a psychodiagnostic situation. The general finding has been that under the drive conditions, there is an emergence of various kinds of clinical reactions that do not appear after the presentation of neutral pictures. It has been reasoned that this outcome is enhanced by, if not actually dependent on the fact that the drive related stimuli are presented *subliminally* and data from a recent experiment (Silverman and Goldweber 1966) have provided some support for this contention. For the sudden press of drive derivatives that are triggered by such stimuli cannot be attributed to an external source as they would be if the pictures were shown supraliminally. Thus, direct discharge of these derivatives is more apt to be blocked, a condition which, as we have pointed out elsewhere (Silverman,

1965a), increases the likelihood of a pathological outcome.

In one of the earlier studies (Silverman, 1966), 32 schizophrenics were exposed to aggressive and neutral pictures and their subsequent Rorschach responses were assessed for the amount of unrealistic, illogical, and loose thinking that they conveyed, i.e., thinking that in psychoanalysis is conceptualized as reflecting the formal elements of the primary process. It was found that this thinking occurred significantly more after the aggressive stimuli. This finding was seen as consistent with views expressed by a number of writers (Pious, 1949; Hartmann, 1953; Bak, 1954; and Cohen, 1954), who have related much of the ego pathology in schizophrenia to difficulties in coping with aggression.²

The experiment to be described in the current paper was designed to elucidate further the effects of subliminally presented aggressive stimuli on schizophrenics. It attempted to answer three

¹ We are indebted to Marilyn Klein for her help during various phases of this research and to Irving J. Blumenthal and Robert H. Spiro for their editorial assistance.

² It should be noted, however, that in two studies (Silverman, 1965b, Silverman and Goldweber, in press) we have demonstrated that it is not *only* schizophrenics who react to subliminal aggressive stimulation with pathological thinking. Certain kinds of non-schizophrenics, namely those with a relatively impaired ability to neutralize aggression, also can respond in this way. However, in contrast to the schizophrenics, such a reaction in these non-schizophrenics has been found to be contingent on a prior experimental arousal of blatantly aggressive ideas.

questions: (1) Will the triggering of aggressive drive derivatives exacerbate aspects of the schizophrenic's disturbance in situations that are more structured than the Rorschach, such as intelligence test tasks of various kinds? (2) Will the disturbance show itself in cognitive deficit, i.e., decreased cognitive efficiency, as well as in increased expressions of primary process thinking and other kinds of ego pathology? (3) Is it only the triggering of aggressive derivatives that exacerbate ego pathology in schizophrenia or does the triggering of any drive derivative produce the same effect? To answer this last question, a three-way comparison was planned with the effects of a libidinal stimulus being assessed as well as the effects of an aggressive and neutral stimulus.

Method

Subjects

There were 30 male subjects, all of whom were patients at the Northport Veterans Administration Hospital. There were three criteria for selection: (1) The subjects had a hospital diagnosis of schizophrenia with no accompanying diagnosis; (2) The subject was under 50 years of age; (3) The subject was chosen by the head nurse in the building where he resided as someone who was cooperative enough and intact enough to engage in the somewhat demanding and time consuming experimental tasks. Only about five patients whose names were originally given as fulfilling this last criterion could not be utilized. Their unsuitability became evident during the first few minutes of the experimental procedure when they appeared too disorganized to follow instructions and they were excused from further participation.

The thirty patients who participated ranged in age from 23 to 45 years, the median age being 36 years. They had been hospitalized for from six months to 17 years, the median time of hospitalization being five years. The median amount of education that they accumulated was 11 years, and they ranged in this respect from 7 to 17 years. Twenty-

seven of the subjects were white and three were Negroes.

Stimuli and Tachistoscope

All the stimuli were posed photographs of human figures. The aggressive and neutral pictures were taken from an earlier study (Silverman, 1966), the former depicting a menacing looking man with a dagger in his hand and the latter another man reading a newspaper. The libidinal picture was of an attractive nude female in her twenties, with breasts and pubic hair clearly visible.

The stimuli were shown through an electronically controlled mirror tachistoscope; the subject looked through an eyepiece at a blank field and the stimuli were exposed from a second field. The viewing distance was 49 inches and the surface brightness of a white card for the intensity setting used was 32 foot lamberts.

Procedure

Each subject was seen individually for three sessions. In the first of these he was introduced to the experiment in the following way:

I am doing psychological research here at the hospital and I am trying to learn as much as possible about the patients who are here. Your name was given me by the head nurse in your building as one of the patients who is highly cooperative and willing to help. I would like you to engage in some tasks that will give me some of the information that I am looking for. Are you willing? (The subject indicates his willingness to participate.) Fine! You will engage in two kinds of tasks. One will involve taking tests of various sorts, for example, working on arithmetic problems. The other will consist of looking into the eyepiece of the machine next to you through which you will see flashes of light.

The subject's baseline cognitive functioning for that day was then assessed under conditions similar to those under which it was to be assessed after subliminal exposure of one of the three

stimuli to be compared (i.e., aggressive, libidinal, or neutral). In order to make for a comparability of conditions, the subject was first asked to look into the eyepiece of the tachistoscope and was given the following instructions: "I would like you to focus on the center of the screen in front of you. I will say, 'ready, get set' and then press a button. Then you tell me what you have seen such as 'flash,' 'flash of light,' or anything else you might see." (It can be noted at this point that no subject ever reported seeing anything more than a flash.) The subject then was given four exposures of a baseline (neutral) picture at 15 second intervals, each exposure being for four milliseconds. This picture was different from the control stimulus and was of a serious looking man with his arms at his side.

Then in the following order, three cognitive tests were administered to the subjects each of which is based on one of the subtests of the Wechsler Intelligence Scales: (1) "Picture Arrangement." This consisted of four items of graduated difficulty for each of which the subject was asked to rearrange the pictures that were put before him into the most sensible order. Then when the arrangement was completed the subject was asked to describe the story that the

pictures told; (2) "Similarities." Seven items of graduated difficulty, for each of which the subject was asked to describe how the pair of items presented were similar or alike; (3) "Arithmetic." Seven items of graduated difficulty, each requiring simple addition, subtraction, multiplication, and/or division.

Following the administration of these tests, the subject was asked again to look into the tachistoscope and this time he was given four exposures of one of the three "critical" stimuli described earlier. This was followed by the administration of another set of four picture arrangements, seven similarities, and seven arithmetic items. These "critical" tests had been judged *a priori* to be roughly equivalent in difficulty to those administered during the baseline assessment. To revive the effect of the critical stimulus, the subject looked into the tachistoscope for four more exposures between the similarities and arithmetic subtests. The experimenter recorded verbatim all of the subjects' verbalizations during both the baseline and critical periods. He also made note of any unusual test behavior that was manifested during the testing session. The procedure is summarized in Table 1.

Table I—Summary of Procedure

1. Four flashes of baseline stimulus.
2. Baseline picture arrangement test (four items).
3. Baseline similarities test (seven items).
4. Four refresher flashes of same baseline stimulus.
5. Baseline arithmetic test (seven items).
6. Four flashes of aggressive, libidinal, or neutral stimulus.
7. Critical picture arrangement test (four items).
8. Critical similarities test (seven items).
9. Four refresher flashes of same aggressive, libidinal, or neutral stimulus.
10. Critical arithmetic test (seven items).

The procedures for the second and third sessions (which were at least two days apart) were identical to that for the first session except that the "critical" exposures were of a different

stimulus, and different test items were given.³ There were six possible se-

³ The items for arithmetic and similarities were made up for use in this experiment by the

quences in which the aggressive, libidinal, and neutral stimuli could appear between the baseline and critical series during the three sessions, and an equal number of subjects received each possible sequence.

One of the authors (SES) administered the procedure described above to all subjects. In order that he be "blind" with regard to the critical stimuli that were to be flashed on in the particular session, the other investigator inserted the slides into the tachistoscope before the experimenter and subject entered the testing room, using a code list of which only he had knowledge.

All stimuli were shown at a speed of 4 milliseconds. In our earlier work, subjects from the same population not only were unable to recognize any aspect of the aggressive or neutral stimulus at this speed, but could not tell one stimulus apart from the other in a discrimination task described elsewhere (Silverman, 1966).⁴

Evaluation of Cognitive Performance

With identificatory marks removed, the investigator who had not administered the testing procedure blindly assessed the subjects' cognitive performances, treating each baseline and each critical series separately. This assessment yielded the following four dependent variables, the first of which reflects the kind of pathology found in the earlier Rorschach studies, while the other three bear on cognitive deficit: (1) *Ego Pathology Score*. This referred to verbal responses and overt behavior which in clinical practice would be seen as reflecting notably disturbed

ego functioning. (These scores were assigned for performance on the picture arrangement and similarities tests only, since on arithmetic, too little verbalization was involved for such pathology to show itself.) Included here were autistic ideas, paralogical reasoning, unwarranted elaborations, non-sequitors, slips of the tongue, language peculiarities, perceptual omissions and other expressions of denial, syncretistic conceptualizations, inappropriate laughter, blocking, and twitching. Each pathological manifestation was given a weight of one to five which was intended to convey degree of severity; (2) *Arithmetic Efficiency Score*. This referred to the correctness of the answer given. One point was given for each correct response except for the last two items in each series where a one-point time bonus was added if the correct answer was given within 15 seconds; (3) *Picture Arrangement Efficiency Score*. Scores of zero to five were assigned for each item, the exact weight being based on both the arrangement of the cards and the story that was told; (4) *Similarities Efficiency Score*. Here, a three-point scale (0, 1, 2) was utilized, with a score of one reflecting a partially adequate response.

For each of the four variables, the total score for each baseline series was subtracted from the total score for the corresponding critical series, producing a "change score." Thus, for each of the variables there were three change scores; one for the aggressive, one for the libidinal, and one for the neutral condition.

Results and Discussion

The first question we sought to answer was whether the subliminal presentation of an aggressive stimulus would exacerbate ego pathology in schizophrenics during well structured cognitive tasks as we earlier found to be the case in the relatively unstructured Rorschach situation. A *t* test was carried out comparing the ego pathology change scores for the aggressive and neutral sessions. The result, which appears on line 1 of Table 2, indicates that this

authors and were based on the Wechsler items. For picture arrangement, the items consisted of sets culled from the various Wechsler scales and sequence cartoons from the New Yorker.

⁴ After the current experiment was completed, 16 of the 30 subjects were available for a similar type of discrimination task, though one in which three stimuli instead of two were to be differentiated. None of these subjects was able to discriminate at a better than chance level. Thus, the existing evidence would seem to justify our use of the term "subliminal" to describe the level at which the stimuli were exposed during the experiment.

question can be answered affirmatively. Significantly more manifestations of pathology appeared after the aggressive than after the neutral stimulus.

The second question we asked was whether the disruptive effect of subliminal aggressive stimulation would show itself in cognitive deficit as well as in increased ego pathology. The results of *t* tests comparing the three efficiency change scores for the aggressive and neutral sessions also appear in Table 2. For arithmetic efficiency, there was a significant decrease after aggressive stimulation while for picture arrangement and similarities, the changes

in efficiency were slight and non-significant. Thus, on one of our three tasks cognitive deficit resulted from exposure to a subliminal aggressive stimulus.

The third question we sought data on was whether the subliminal presentation of a different kind of drive stimulus, i.e., a picture designed to trigger libidinal derivatives, would also disturb ego functioning. Again, *t* tests were performed, this time comparing the change scores for the libidinal and neutral sessions for each of the four variables. These results appear in Table 3. The ego pathology result, although in the same direction as it was when the

Table 2—Mean Change Scores For Aggressive and Neutral Sessions

	Experimental Session Change Score	Control Session Change Score	Difference Between Change Scores	S.D. of Difference	<i>t</i>
Ego Pathology (N=30)	+2.30	-.33	2.63	7.95	1.81*
Arithmetic Efficiency (N=30)	-.23	+.63	.86	2.65	1.78*
Picture Arrangement Efficiency (N=30)	+1.40	+1.47	.07	4.50	.01
Similarities Efficiency (N=30)	-.40	.83	.43	3.75	.63

* Significant < .05 level (one-tailed test).

Table 3—Mean Change Scores For Libidinal and Neutral Sessions

	Experimental Session Change Score	Control Session Change Score	Difference Between Change Scores	S.D. of Difference	<i>t</i>
Ego Pathology (N=30)	+1.50	-.33	1.83	8.34	1.20
Arithmetic Efficiency (N=30)	-.30	+.63	.93	2.98	1.71*
Picture Arrangement Efficiency (N=30)	+.80	+1.47	.67	4.61	.80
Similarities Efficiency (N=30)	-2.03	-.83	1.20	3.69	1.78*

* Significant < .05 level.

aggressive and neutral conditions were compared, no longer was significant.⁵ On the other hand, for the efficiency measures, on two of the three tasks, cognitive deficit appeared after drive stimulation. Again, there was loss of efficiency on arithmetic and in addition, unlike the result for the aggressive condition, there was a significant deficit on similarities. Thus, with regard to two of our measures, subliminal libidinal stimulation can be said to have impaired the functioning of the schizophrenics.

At this point, it can be asked why cognitive efficiency was differently affected on the three tasks. Arithmetic performance was lowered by both drive conditions; similarities by only one, and picture arrangement by neither. There are at least three possible and not mutually exclusive explanations: (1) A sequence effect may have played a part since the picture arrangement subtest always was given first and arithmetic last. Perhaps either the cumulative effect of an additional set of stimulus exposures and/or a time lag was necessary to produce cognitive deficit; (2) The differences among the tasks in terms of how stimulating the test items were, may have accounted for their differential impairment. Arithmetic, which showed the most deficit, is comprised of the most neutral test items, similarities consisted of somewhat less neutral items, and picture arrangement, on which there was no cognitive deficit, is comprised of pictures showing various kinds of interpersonal situations, most of which have aggressive or libidinal elements. Thus, on picture arrangement, the test items themselves may have activated drive derivatives and this could have obscured the effects of the drive related subliminal stimuli on cognitive

efficiency; (3) The different degrees of deficit may have been due to the differences among the ego functions underlying the three cognitive tests in their vulnerability to drive encroachment. The chief functions involved are concentration for arithmetic, concept formation for similarities, and social planning and anticipation for picture arrangement (Rapaport, Gill, and Schaffer, 1945). While all three functions show impairment in schizophrenia, concentration may have been most sensitive to the triggering of drive derivatives because in Rapaport's (1960) terms, it is a less structuralized function than the other two.

A final point to be discussed concerns the finding that cognitive efficiency on the similarities test was not affected by the aggressive condition, yet showed a significant deficit after the sexual stimulus. (The difference between these two conditions was significant; $t = 2.35$, $p = .025$.) This is particularly noteworthy in light of a recent clinical paper by Keiser (1962) on abstract thinking, an ability which high level concept formation relies on. Keiser discusses the genesis of impairment in this ability, one aspect of which is pertinent here. He reports that in a number of male patients whom he has treated, where disturbances in abstract thinking have been notably present, their early history was marked by repeated and prolonged exposure to the female genital area by blatantly exhibitionistic mothers. He postulates that such experiences not only stirred castration anxiety in these patients as young boys, but made inoperable a defense that is frequently employed against this anxiety, namely denial of the female as "castrated." This, in turn, forced the adoption of the fantasy that the penis was *hidden inside* the vagina. However, to maintain this defense, the idea of looking beyond the external genitalia could not be tolerated. This then was extended into a general taboo against "looking beyond" observables, or put otherwise, there was a movement away from abstract think-

⁵ However, it can be noted that when we extracted only those ego pathology scores bearing on the subjects' overt behavior during testing, (inappropriate laughter, blocking, and twitching) as opposed to the other categories which bore on their verbal responses to the test items, the libidinal condition (as well as the aggressive) produced significantly more pathology than did the neutral condition ($p < .05$).

ing toward concrete thought. The aforementioned findings for the similarities test can be seen as supporting a dynamic corollary of Keiser's formulation. Namely, at least with some schizophrenics, the arousal of images of the nude female will lead to a lowering of the individual's ability to think abstractly to a point below his baseline level.

Whether or not this specific formulation is valid, the similarities test findings suggest the following conclusion: The triggering of derivatives of one drive may have a pathological effect on an ego function which those of another drive do not have. Further support for this was suggested by a post hoc examination of the ego pathology scores. Although there was no significant difference in the total amount of pathology reflected between the aggressive and libidinal conditions ($t < 1$), there was such a difference for specific kinds of ego pathology. In our earlier studies, a post hoc breakdown of the data revealed that the increase in the formal elements of primary process thinking that occurred after aggressive stimulation was "carried" by specific subtypes. These can be conceptualized as involving a breakdown of inhibitory cognitive structures, allowing for both the fusion of imagery that should have remained separate and the emergence of thoughts or thought fragments that should have been screened out.⁶ As we have discussed elsewhere (Silverman, in press), these findings are of particular interest since Bak (1954) has described just this type of ego pathology as occurring in schizophrenics specifically as the result of their struggle against aggression.

In light of the above, we thought it worthwhile to select from among the categories of ego pathology in the current study those that seemed to reflect the kind of disinhibition just described.

⁶ In terms of the Holt (1963) primary process manual, the fusion responses include the various categories of "condensations," while the emergence responses include those labeled "autistic elaborations," "intrusions of irrelevancies," "self-references," "memory loosening," "autistic logic," and "verbal slips."

We included here unwarranted elaborations, slips of the tongue, non-sequiturs, paralogical reasoning, and autistic ideas. A comparison of the effects of the aggressive and libidinal stimulation for just these categories yielded a significant difference in favor of the aggressive condition ($t = 1.78$; $p = .05$). This supports the contention that this particular kind of ego pathology is specifically linked to the activation of aggression.⁷ It also lends further weight to the suggestion made above that different types of drive activation lead to different kinds of ego pathology, a hypothesis that we are currently investigating more extensively in our laboratory.

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Auditory Perceptual Patterns of Process and Reactive Schizophrenics

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Summary The auditory perceptual patterns of 25 process schizophrenics, 23 reactive schizophrenics, and a matched control group were evaluated through the use of The Sound Test, an auditory projective technique. The results indicated that the auditory perceptual style differentiated significantly and systematically between the process and reactive schizophrenics, and between the schizophrenics and the clinically normal groups. The results of The Sound Test were further discussed in terms of scanning, field articulation, and ideational gating mechanisms.

Our present knowledge of the perceptual patterns of schizophrenia has been derived primarily from studies utilizing visual stimuli. Such concepts as field articulation and differentiation (Witkin, Dyk, Fatterson, Goodenough, and Karp, 1962; and Wapner and Werner, 1957), ideational gating mechanisms (Silverman, 1964), and perceptual scanning (Berlyne, 1960; and Santos, Farrow, and Haines, 1963) can be further studied and extended through the use of auditory stimuli. There is a growing interest and concern in further exploring and studying other sensory input mechanisms such as touch (Gibson, 1962), psychomotor activity (Witkin, et al, 1962), auditory perception (Friedman, 1956; Lebowitz, 1963; Husni-Palacios and Palacios, 1964; and Lazarus, Erickson and Fonda, 1951), and their relationships to behavior and pathology.

It is Arieti's contention (1955, p. 250) that "auditory perceptions are less primitive than the visual ones, and are more apt to be used first when thought processes regress to a perceptual level." Because of the tremendous importance that language plays in human thinking, auditory images are almost always present even when visual images occupy the predominant role. Lazarus and his colleagues (Lazarus, et al, 1951) stated that the auditory stimuli offer an ideal medium for studying perceptual

effects. The temporal sequential nature of auditory stimuli renders them unique for further exploring the response to stimulus ambiguity, expectancy and perceptual accuracy. Lerea (1961, p. 229) investigated figure-ground relationships through the use of auditory stimuli. He defined figure-ground perception as being "fundamental to all organized sensory behavior, and has reference to the process of selectively abstracting central salient sensations (figure) from the multitude of less relevant stimuli (ground) both impinging upon a sensory system." Husni-Palacios and Palacios (1964) studied the perceptual patterns of blind adults through the use of auditory stimuli. Their results indicated that perceptual articulation and differentiation, and field-independence were significantly related to functioning efficiency and vocational success.

The perceptual act has been defined and understood as an active process involving expectancy, attention and the selection and structuring of stimulus input which eventuates in percepts of varying degrees of clarity, organization and differentiation. Friedman (1953), Fine and Zimet (1959), Lebowitz (1963), and others have linked Werner's developmental theory (1948) with varying levels of hierarchical organization, integration, and field articulation to various experimental and pathological

groups. The manner in which an individual scans and articulates the field has been demonstrated to relate to premorbid adjustment, developmental maturity, prognosis and functioning efficiency.

The present experiment was designed to study the auditory perceptual patterns of reactive schizophrenics, process schizophrenics and a clinically normal group, controlling for a number of variables related to perceptual and developmental behavior.

METHOD

Subjects

Subjects in this study consisted of 68 male veterans obtained from a large VA Neuropsychiatric Hospital. The schizophrenic sample included 23 reactives and 25 process subjects who were on tranquilizing medication during the period of testing. The process-reactive dimension was determined by Becker's revision of the Elgin Scale (1956).

Table 1
Sample Breakdown of the
Process, Reactive and Control Groups

Diagnosis	Process N - 25	Reactive N - 23	Control N - 20
Paranoid	14	15	
Undifferentiated	9	6	
Schizo-affective	2	1	
Catatonic	0	1	
	Mean	Mean	Mean
Elgin Score	61.73	40.81	
Education Level	11.20	11.05	10.55
Age	38.02	37.58	37.55
WAIS	98.63	98.20	99.77

The control group consisted of hospital employees who had minimal contact with the patients, and who had no history of behavior disorders. All subjects were equated for age, educational level, and intelligence as measured by the WAIS. Table 1 presents the sample breakdown.

The Sound Test, an auditory projective technique, (Husni-Palacios 1959, Husni-Palacios and Palacios 1964) consists of a series of 15 sound segments, depicting human and mechanical interaction sounds common to everyday life situations, such as music, crowds, dialogue and non-verbal human sounds. The subjects were called upon to interpret the sound segments and to give them organization and meaning. The instructions were as follows:

Here I have sounds, all kinds of sounds, and I am going to play them to you one at a time. I will stop the machine after every sound. When I stop, I want you to tell me what the sound reminds you of, what it brings to your mind, what it makes you think of, and if you wish you can tell me a story. Are you ready? Here is the first sound. This test was used to study auditory perception. The responses to The Sound Test were recorded verbatim and scored for the following variables:

1. Units of thought—a unit of thought is defined as a minimal verbal statement expressing an independent thought or communication.
2. Concept formation
 - (a) Definitive—a positively stated concept.

- (b) Multiple—more than one definitive concept.
- (c) Uncertain—an unsure, hazy concept.
- (d) Rejection—the inability to form a concept or complete rejection of the sound segment.
3. Parts of the sound responded to.
- (a) Whole—response to all parts of the sound.
- (b) Detail/Whole—response to all parts of the sound by inference, and sharpening of a detail, or one part only.
- (c) Detail—response to only one part of the sound.
- (d) Inference—response to the sound by inference only.
4. Integration.
- (a) Integrated 5+ details—a meaningful integrated response with 5 or more details or units of thought.
- (b) Integrated—a meaningful integrated response with less than 5 details.
- (c) Attempt to integrate.
- (d) Inability to integrate—or pure sound description.
5. Manner of verbalization.
- (a) Coherent.
- (b) Not coherent.
6. Identification.
- (a) Personal Identification—direct personal reference.

Table 2
Sound Test Response Pattern for the Process, Reactive,
and Control Groups

Response Category	Process	Reactive	Control	Process-Reactive	Process-Control	Reactive-Control
	Mean	Mean	Mean	t	t	t
I. Units of thought	27.76	35.26	37.47	2.08*	3.76***	.58
	Percent	Percent	Percent			
II. Definitive	.80	.85	.88	1.50	3.23***	.13
Multiple	.12	.08	.08	2.06*	1.44	.00
Uncertain	.05	.06	.03	.37	.72	1.91*
Rejection	.03	.01	.01	1.87	1.26	.00
III. Whole	.29	.32	.40	.74	3.20***	2.08*
Detail/whole	.28	.28	.30	.00	.53	.87
Detail	.23	.22	.12	.18	3.56***	3.30***
Inference	.20	.18	.18	1.29	.35	.00
IV. Integrated with Ds	.01	.08	.07	4.63***	4.09***	.17
Integrated	.32	.50	.72	4.81***	9.78***	5.73***
Attempt	.34	.25	.17	3.33***	6.76***	2.08*
Inability	.33	.17	.04	4.81***	9.96***	5.21***
V. Coherent	.84	.94	.98	4.07***	6.49***	2.60***
Not coherent	.16	.06	.02	4.07***	6.94***	2.60***
VI. Personal Identif.	.05	.09	.06	2.22*	.18	1.39
Distance	.07	.09	.08	.55	.36	.52
Life situation	.88	.82	.86	2.23*	.36	1.39
VII. Response during	.31	.25	.07	1.66	7.55***	6.89***

* Significant < .05 level

** Significant < .01 level

*** Significant < .001 level

- (b) Controllable distance.
 - (c) Life situation.
 - 7. Reaction time.
 - (a) Response during the presentation of the sound segment.
 - (b) Latency time in seconds after presentation of sound segment.
- The only differentiation made for this study was whether the subject responded during the presentation of the sound segment or whether he responded after the termination of the sound segment.

For the purposes of inter-group comparisons, the frequency data obtained from The Sound Test were transformed into percentages and the "t" values computed from proportions (Lawshe and Baker 1950). The .05 probability level was established as that necessary for acceptable significance.

RESULTS

Table 2 presents The Sound Test response pattern for the process, reactive and control groups. The obtained results indicate consistent and significant differences between the groups. The response style of the process schizophrenic differed significantly from that of the reactive in the following manner. The process group gave significantly less units of thought than the reactive group ($p < .05$). They also demonstrated a significantly greater difficulty in integrating the stimulus situations into meaningful responses ($p < .001$). The response style of the reactive sample reflected a higher level of cognitive organization ($p < .001$) than that of the process group. Only 17% of the responses of the reactive group reflected difficulty in selectively attending to the relevant information from the stimulus field. The reactive sample also drew to a greater extent on their personal feelings, ideas, and associations in organizing their percepts ($p < .05$). They also verbalized their responses in a more coherent manner ($p < .001$).

The auditory perceptual pattern of the process group also differed signi-

ficantly from that of the clinically normal group.

Inspection of Table 2 will reveal that the process group produced significantly less units of thought than the control group ($p < .001$), and they exhibited a significantly higher tendency to respond to details rather than wholes ($p < .001$). They also experienced difficulty in figure ground relationships, and were more readily distracted by irrelevant cues. The ability of the process group to arrive at a highly integrated and differentiated response was significantly lower than the control group ($p < .001$). The process schizophrenic sample tended to arrive at their percepts much sooner than the control group ($p < .001$), in fact, long before the complete stimulus situation was fully presented. Once they identified a percept, they had difficulty in either changing it, or integrating the remainder of the sound segment with it. As a result their percepts were fragmented and poorly integrated.

The manner in which the reactive sample structured and organized the perceptual field lies in between that of the process group and the clinically normal one. The reactive group tended to give significantly more hazy and uncertain percepts than the clinically normal one ($p < .05$). They responded significantly more to details of the sound segments ($p < .001$) and less to wholes ($p < .05$) than the control group. The auditory integration score again reflected the higher perceptual organization level of the control group ($p < .001$). The reactives, like the process group, tended to respond "piecemeal", and arrived at their percepts before the totality of the sound segment was presented. This difference is again significant beyond the .001 level. The reactive group were significantly less coherent in verbalizing their responses than the control group ($p < .01$), thus reflecting a basic schizophrenic symptomatology.

DISCUSSION

The processes of perceptual organization and differentiation, whether au-

ditory or visual, seem to reflect the characteristic cognitive style of the perceiver. The studies of Friedman (1956), and Lebowitz (1963), both utilizing visual and auditory stimulus situations, concluded that a consistent pattern of perceptual behavior exists across these sense modalities. Witkin and his colleagues (Witkin, et al 1962) have demonstrated the field-dependency-independency variable to be a consistent behavioral adaptive pattern. The results obtained in this study lend further support to this concept of cognitive adaptive style. Furthermore, the unique qualities inherent in auditory stimuli, such as the temporal sequence and expectancy, render it a highly valuable modality for furthering our knowledge of perceptual and cognitive problems.

The Sound Test response pattern differentiated significantly between schizophrenic groups differing in premorbid-developmental and prognostic factors, thus paralleling the results obtained by Becker (1956), Garnezy and Rodnick (1959), Fine and Zimet (1959) and others, who used visual stimuli.

The process schizophrenic group experienced the greatest amount of difficulty in meaningfully organizing their percepts into integrated and differentiated responses. In general they demonstrated the highest degree of problems in attending selectively, or in selecting the relevant information from the stimulus situation. The reactive group differed significantly from both process and control on the integration, scanning and field articulation measures. Finally, the control group demonstrated the highest degree of integration and differentiation. They handled the sound segments with considerably more ease, they completely scanned the field before forming their percepts, and as a result their responses were integrated and meaningful.

The clinical observations of Arieti (1961, 1962) and Bleuler (1951) emphasizing the difficulty schizophrenics experience in perceiving integrated stimulus patterns were demonstrated by the results of this study. The process and reactives exhibited varying degrees of

difficulty, first, in perceiving the totality of the stimulus situation, and second, in organizing their percepts into meaningful integrated wholes. They responded to common everyday auditory stimuli in a field dependent, "piecemeal", and "awholistic" manner. Furthermore, the schizophrenic groups made their judgments significantly earlier than the nonschizophrenics, thus utilizing minimal scanning and scant evidence in forming their percepts. This response style is in direct agreement with Draguns' (1963) findings in an experimental task using various degrees of stimulus ambiguity. Once the percept had been formed, it was very difficult for the schizophrenic samples, and especially so for the process group, to change the percept or to integrate the rest of the stimulus field with the verbalized concept. As a result their percepts illustrate the poor reality testing often encountered with a schizophrenic population.

McReynolds (1960), Davis and Cullen (1958), Berlyne (1960), and others have related this atypical scanning behavior of schizophrenics to their withdrawal and avoidance reaction to anxiety provoking environmental variables. This defective response style suggests that Silverman's (1964) concept of ideational gating mechanisms applies equally well to auditory perception. The schizophrenic's attention-response process serves to filter out potentially threatening inputs, and gate in limited aspects of reality in a manner nonthreatening to their schizophrenic adjustment. The schizophrenic's approach to cognitive and sensory inputs can be characterized by brief and relatively superficial encounters with the environment, sampling stimuli in a "piecemeal" manner, with the resulting inappropriate behavior.

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BOOK REVIEWS

Shapiro, David, *Neurotic Styles*, Basic Books, New York, 1965, \$5.50.

The author categorizes *Neurotic Styles* as a clinical book on neurosis or neurotic functioning. These neurotic styles are defined as being equal to "those modes of functioning that seem characteristic . . . of the various neurotic conditions." However, it must be said that the author understates his case, as this is a book which makes an important contribution to our understandings of not only the neurotic person, but also of the functioning of people throughout the developmental spectrum. In addition, important ideas are proffered on the development of reality testing.

Shapiro uses the bulk of this book to demonstrate the outlines of four major neurotic styles; obsessive-compulsive, paranoid, hysterical and impulsive. He emphasizes the fact that we usually pay more attention to the content of an act than to its manner, and feels that the latter point of view provides a new insight into familiar material. The author discusses the usefulness of psychological tests in ascertaining neurotic styles, and states that he conceives of these "styles" as being psychological structures in their own right. Thus, as the ego is conceptualized as mediating between fantasy and reality, Shapiro conceptualizes the neurotic style as imposing a peculiar or idiosyncratic form upon the interaction with the environment.

Early in the book, Shapiro hypothesizes that the "mode of thinking might be one factor that determines the shape or form of symptom, defense mechanism and adaptive trait as well." At this point the author's ideas begin to apply to the general population rather than to just one diagnostic classification. He expands upon the idea of the neurotic style mentioned above, and relates it to human consistency over broad areas of functioning. The appropriateness of symptomatology to both the person and his chosen environment is used to further support the importance of "modes of thinking" to the development of neurotic styles. There is a discussion of the question of "choice of neurosis," with scholarly references to the psychological and the psychiatric literature.

The author does not claim that the concept of "neurotic styles" of interaction is completely new, as he points out forerunners of the concept in the literature. He feels that Reich's (1949) concept of "character" is the most closely allied to his own concept, save for two differences. First, Shapiro sees Reich as viewing character as arising out of and being maintained solely by the infantile conflicts. He feels that character or style attains an existence independent of defensive requirements, and in this

gives support and elaboration to Hartmann's concept of the conflict-free ego sphere (1964). The second point of difference is that Shapiro feels that Reich's concept of character ignores the fact that external reality contributes to the adaptive development of characteristic modes of functioning, as well as internal reality.

However, the major contribution of this work is not reached until Shapiro defines and discusses his concept of "activity" in neurotic functioning. He argues against what he labels as the "marionette" conception of mental illness which defines it as a disease entity which acts upon the helpless, passive individual. Then, he makes the point that the neurotic seems to think in such a way, and his attitudes and interests are such as to continue and sustain the neurotic process, and to make the characteristic neurotic experiences inevitable. The example is given of how the paranoid person is "not simply visited by delusions and apprehensions, but searches actively for clues to new dangers." This interpretation is supported by recent research (Ward, 1966 and Eiduson, Rosow & Switzer, 1965) which showed that severely disturbed patients tended to respond to those items in the environment which were new and threatening, rather than to those items which were familiar and benign. Thus, they seemed to be "seeking out" those experiences which would stimulate their areas of conflict, and this would seem to support the concept of patients' active participation in their pathological "style."

Shapiro feels that the psychological style is grounded in what he labels the "initial organizing configuration". This is his label for the physiological and psychological equipment which the infant possesses at birth. He feels that this initial equipment imposes some vague form upon the environment, and gives a slight bias as to the style of reaction to the new world of sensations. The effect of hypersensitivity to the environment upon development has been explored at some length in the well known paper by Bergman & Escalona (1949). They felt that hypersensitivity stimulated early ego functioning and their reasoning and findings would seem to support Shapiro's hypotheses about the "initial organizing configuration." There is an extensive discussion of the effect of the "initial organizing configuration" upon the infant's experience of reality, with a description of the development of secondary process.

The author feels that the development of the capacity to delay gratification is one aspect of what he views as a structural change in the "form or style of organization." However, speaking more generally, Shapiro feels that the "individual's style of functioning . . . characterizes defensive operations as

well as all others." He sees this process as one in which the conscious individual participates, not by choice, but simply by being what he is. This process is seen as being self-stabilizing and self-maintaining, due to its tension-reducing function. The individual is reassured when he finds things that fit the template of his style, but this emphasis on particular classes of experiences means that other experiences are excluded from awareness. This is exemplified by the well known futility of attempting to logically deal with a disturbed individual's view of the world. However, Shapiro does not feel that these "styles" are immutable, and emphasizes the influential role that environmental factors play in the development of a psychological style.

Finally, Shapiro suggests some hypotheses as to the etiology of hypertrophic ego development in the young child subjected to extreme stress.

This is an excellent book for all who are interested in gaining a more rounded understanding of psychological functioning. Its major contribution is an extended evaluation of the position of mental illness between the two poles of being conceptualized as a disease entity or as a "problem in living."

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Murstein, Bernard I., *Theory and Research in Projective Techniques*. John Wiley & Sons, Inc., N. Y., 1963.

Having started as a research instrument to aid in predicting behavior and consequently to test theory, the TAT has become one of the plumber's tools of the clinical trade. Research on the TAT subsequently has, as a result, been largely oriented to its clinical usefulness. More recent research on the TAT has to an extent restored the balance between its original use and its clinical application.

An excellent survey and critical review of TAT research which continues the redress of this griev-

ance over the clinical takeover, is Murstein's *Theory and Research in Projective Techniques*. Its sub-title, "Emphasizing the TAT," is a more accurate description of the text's contents. Because of the text's focus, it foregoes a more complete analysis of projective techniques.

The TAT research in which the author is most interested seeks to identify and quantify TAT variables. The result has been to convert a broad spectrum personality instrument, as it has been commonly employed by clinicians, into a procedure that isolates single TAT variables and relates these to behavior. This has been the course of TAT research and this in essence is the theme of the book. The more global clinical approaches such as Henry and others employ are described by Murstein as non-quantifiable, non-teachable, and a contamination of the power of the test with the power of the clinician. The question, as Murstein sees it, is what can the test do. This means that the claims of these TAT theorists must be subjected to critical quantitative analysis.

The coverage in the text should be valuable to the student of projective techniques, particularly the TAT. It is an overview as well as a critical essay, with few omissions, of the important research done on the TAT. Contributions of McClelland, Atkinson, Murstein and a number of others are discussed in sufficient detail to provide both an informed resume of the particular work as well as a critical commentary. Henry's clinical approach, and the work of Murray and his group are treated with special attentiveness by the author.

Murstein starts with a brief historical review of thematic picture tests. This serves as an adequate introduction to the remainder of the book. The work of Murray and his collaborators follows and here the emphasis is on methods of analyzing the TAT. The author divides the systems of analysis into two broad categories. The first is the non-quantitative systems under which he includes three of the most important examples and, secondly, the quantitative systems, of which there are four examples. The quantitative approach is further divided into formal-content-quantitative and content-quantitative. The latter approach is that of McClelland. The McClelland approach of placing emphasis on the content of the story using a very specific sample of behavior is more of a return to the Murray approach than the other quantitative systems. In addition, there are chapters on Theory, Reliability and Validity, the Stimulus-Subject effect, and some of the experimental findings on sex, aggression and a number of other variables. Statistical techniques are introduced in connection with the discussions on reliability and validity which do add to understanding the problems in standardizing the TAT or a thematic picture test.

In books which critically survey the research in a particular field, the authors implicitly or explicitly

provide a final tally to express the status of the field. v. Murstein's tally, and this is somewhat ambiguous in his summing up, places the TAT a shade over in the losing column as to its claim as an instrument that provides a useful or dependable assessment of personality and behavior.

The results of many TAT studies are well known to the student in the field. When brought together the result is that what may seem to be the most important work frequently does not stand the test of replication, especially in the hands of a different-from-the-original-researcher. Secondly, and especially with the complex projective test, there is no one-to-one correspondence between measures of dependent and independent variables. The relationship is often nonlinear and the product, from the standpoint of the practical utility of the device or theory, is less than encouraging for it may only deal with significant results for a small population within a narrow range of behavior. The assumption that the TAT measures motives, needs, and fantasies and that these are related to overt behavior are challenged in the Murstein tally. Only the relative ambiguity of the cards and the effect on TAT performance has been effectively explored and delineated. The matter of whether the TAT gets at the fantasies of the subject has been laid to rest and the issue is one that the clinician may be more able to decide in the individual case than the researchers. Motives and needs when correlated with behavior show very modest relationships in the earlier work that was done by Murray and better results in the more recent efforts of McClelland and Atkinson. The price of improved validity is a specificity of motive, need and behavior which is not the way the TAT is commonly used in the clinic. Nor are the results of these later researchers unequivocal. N Ach and N Aggr are complex variables, as measured on the TAT, and relate to behavior in complex, and unpredictable ways from the standpoint of the original theorizing. Furthermore the results are not consistent from one researcher to the other. Programmatically, the author predicts that motive and needs will be even more specifically defined, using TAT-like methods for eliciting the desired performance response. Meanwhile, the TAT remains the instrument of choice for a large body of Clinicians.

A somewhat more rosy outlook can be taken about the status of some TAT research. The McClelland and Atkinson applications of the TAT are an indication of its usefulness as a research tool when underpinned by detailed and ambitious theorizing, which is the way the TAT was originally brought into being. The results contribute significant insight into the relationship of the TAT expression of motives and needs to behavior. This is useful information to the clinician.

The clinical use of the TAT does depend on the skill of the person using it and this skill includes the

ability to apply research findings. This skill in application of research findings is part of the history of the use of the TAT. The test is also used clinically in a context that differs from research usage in that the purpose of the TAT clinical application is to understand behavior. It is one of the several sources of information and samplings of behavior which are available to and used by the clinician. Its role in respect to future behavior is to plan for change. The clinician finds in the complexity of the TAT leads indicating how such changes may be effected. Feshbach points out that the factors of guilt and anxiety affect the TAT performance so that the quantitative measures using the TAT would have little direct correspondence to the behavioral expression of these motives and needs. Yet for the clinician, the guilt and anxiety which confound research involving experimental and control populations is one of the prime considerations in using the projective test. Purcell's work on aggression incorporating measures of guilt, shame, etc., in its complexity also supports the clinical use of TAT. Murstein states that the problems of using the TAT with adults and college students may not arise with children because the latter are less guarded in their response to the TAT. This is not necessarily true for every child but the TAT with children has much to recommend it in that its pictured situations and the performance requirements mirror the child's world and the demands made and pressures placed upon him. The latter is a clinical judgement but there is support from the TAT research which shows one can measure achievement and relate it to behavior or that the language and concepts used on the TAT performance tell something about the adjustment of the individual.

A volume such as the Murstein text informs and stimulates critical clinical thinking as well as providing research data for clinical use. The book should serve to motivate the student to realize the value of and to consult the original sources of the more important research studies that are analyzed. The suggestions made by the author for future research and the consistency with which he leads to these conclusions through his assessment of the research can be very helpful to potential doctoral and other investigations. This is a worthwhile supplementary test for clinically oriented projective technique courses and certainly is to be recommended for reading and study for students of projective and general psychology.

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Bentz, Hans W., *Sigmund Freud in Übersetzungen.* Hans W. Bentz Verlag, Frankfurt A. M., 1961, pp. xiii, 60, DM \$16.80.

Appearing as part 2 of Volume I in "World Literature in Translation", "Sigmund Freud in Übersetzungen" is a bibliography of translations of Freud's books and anthologies, published between 1945 and 1961. An Introduction by von M. Beyer-Meissen presents a brief clear exposition of Freud's conceptualization of the psychic apparatus. The Main Part of the book consists of 158 titles, translated into 16 languages. An Appendix includes 24 additional titles of excerpts and incomplete works. Six extensive Indexes enable the reader to trace each work according to the original title, title of the translation, translator, publisher of the original, or publisher of the translation. This book, like others in this series, may prove helpful to English speaking researchers on Freud, as it is effectively organized and all editorial additions are in English.

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Singer, Erwin, *Key Concepts in Psychotherapy*, New York, Random House, 1965, 384 Pp. \$6.95.

There was a bleak period in the fifties when, for the teacher of psychotherapy, there seemed to be few source materials on psychotherapy and many problems in finding suitable textbooks and outside readings other than the basic writings of the major authorities. The sixties seem to be making up for this lack to the extent that the choice from among the many good books becomes difficult. This comment is not meant to minimize the importance of this particular work but rather to put it in a perspective for the teacher and student of psychotherapy. This is a worthwhile book which presents in a direct and scholarly way some of the basic issues in the practice and theory of psychotherapy and, in a cautious and critical fashion, discusses the key concepts of psychotherapy. The author does not present his own points of view about the key concepts but presents a summarization of the views of Freud, Sullivan, Fromm-Reichmann, Rogers, and others. Of necessity, the author's views are apparent but they do not overshadow or seriously interfere with the presentation of the basic ideas.

This textbook carefully defines some of the basic concepts in psychotherapy and relates these definitions to assumptions about behavior, specific frames of reference, and value systems implicit to a particular viewpoint. The author has been most diligent in his attempt to fulfill these goals. This textbook was written with a particular audience in mind—an audience of graduate students in psychology, resident physicians in psychiatry, and graduate stu-

dents in other disciplines who are learning about or practicing psychotherapy. The student therapist is aware of difference between books about therapy practice and books about theory; such differences exist and both occupy an important part in training of the psychotherapist. Although this textbook's main emphasis is theory, it seems enough related to the issues of practice to make interesting reading.

The actively practicing psychotherapist often wonders if there actually can be such a thing as a book about practice since much of what occurs in therapy is highly idiomatic, unique, and non-generalizable. At the same time there is a pervasive eagerness on the part of the therapist to conceptualize about what he is doing and put in objective terms the reasons for his behavior. This eagerness and inner press may account for the great number of books appearing on the market and the undoubted market which exists for such books. The teacher of psychotherapy finds himself in the additional bind of being acutely aware of the difference between practice and concept and the need to achieve some balance for the student in the understanding of what he has chosen to learn. The desire to present objective evidence related to psychotherapy often results in an angry and demeaning presentation of psychotherapy. On the other hand, the teacher fears picturing himself as an artist and clinician who functions at times in a way which is highly subjective and dominated by feeling. Many articulate psychotherapists now are expressing themselves with little of the critical self-consciousness of several years ago and are portraying the practice of psychotherapy as a respected and respectable professional pursuit that has no apologies to make to professions within or outside psychology. This general tone is apparent in the book and is to the credit of the author. This tone of competence may even bring about the revision of perspective necessary for a systematic and scientific study of the processes and effects of psychotherapy.

This book presents some of the key concepts of psychotherapy from a psychoanalytically oriented, individual oriented point. The author relates the concepts to other non-analytic points of view when they are available. The concepts which are most explicitly covered are interpretation, resistance, transference, countertransference, insight, identity, and termination. The obvious disappointment in the reading is that so much more needs to be said about each concept. Fortunately, the author gives enough about each concept so that the basic germ of the idea is present and should entice student into further reading and discussion. Anyone undertaking the challenge of writing a book such as this has already punished himself enough in the process of distillation and pursuit of essences to be aware that much more needs to be said about each key concept than can be contained in any one book. In addition to discussion of and comparative exposition of key concepts there is an excellent discussion of the basic

problems related to concepts of psychotherapy. This book would provide an excellent source of material for class discussions about therapist and patient roles, value systems, and contemporary practices accessory to psychotherapy itself.

As to the format of the book, each chapter closes with a short summary of the points made in each chapter which unfortunately smacks of "contemporary" introductory psychology text books. The condensation of material necessary in the discussion of each concept is considerable; further summarizing and condensation at the close of each chapter seems a bit too much. Liberal use of case material to exemplify the presentation of each concept is commendable. The case material not only improves the readability of the book but also develops succinctly the particular concept under discussion. There is enough case material to be interesting and not so much theory that the student becomes bored and discouraged by the complexity of theorizing. The book presents to the student a gentle introduction to analytic terminology without overwhelming him. The analytic point of view is more carefully stated than usual in this type of book and should make further reading and discussion of this point of view easier. This book must be accompanied by a "how to" book if the student is going to be actively engaged

in the learning of psychotherapy through actual experience. Although the examples this author gives will be helpful they are far from adequate. For the teacher the problem will be finding the "how to" book for the student. This reviewer is still looking.

One limitation apparent in this book, and in many other textbooks in psychotherapy as well, is the omission of important ideas evolving in the fields of group psychotherapy and behavior therapy. Group psychotherapists are actively involved in the conceptual battles about resistance transference, and insight and the enrichment of their field is often overlooked. It is to be wondered whether the individual therapist will continue to ignore a psychotherapeutic approach which, in time, may change, in both theory and practice, the field of psychotherapy.

Key Concepts in Psychotherapy is a good introductory textbook on concepts of psychotherapy and will likely demonstrate its value in the classroom for many students and teachers. This book has defined goals and a defined audience target, and should do well by the wisdom of selectiveness.

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BOOKS FOR REVIEW

The following books are available for review. If you wish to review one of them, please write to the Executive Editor, Walter G. Klopfer, Ph.D., 7111 S.W. 55th Ave., Portland, Ore. 97219

Szekely, E. "Basic Analysis of Inner Psychological Functions," *The British Journal of Psychology*. London: Cambridge University Press, 1965, 130 pages.

Loosli-Usteri, Marguerite. *Manual Pratique du Test de Rorschach*. Paris: Hermann, 1965, 130 pages.

Phillips, Herbert P. *Thai Peasant Personality*. Berkeley: Univ. of Calif. Press, 1965, 208 pages. \$6.00

Stekely, Wilhelm. *Peculiarities of Behavior Vol. II*. New York: Grove Press, 1964, 337 pages. \$1.75

Carpenter, Edmund, & McLuhan, Marshall (eds.) *Explorations in Communication: An Anthology*. Boston: Beacon Press, 1966, 208 pages. \$1.95

Reeves, Joan W. *Thinking about Thinking*. New York: George Braziller, 1966, 333 pages. \$6.95

Mondale, Lester. *Preachers in Purgatory*. Boston: Beacon Press, 1966, 243 pages. \$4.95

Buss, Arnold H. *Psychopathology*. New York: John Wiley, 1966, 483 pages. \$7.95

Ahsen, Akhter. *Eidetic Psychotherapy*. Lahore, Pakistan: Nai Matboat, 1965, 246 pages.

Kleinmuntz, Benjamin (Ed.) *Problem Solving: Research, Method, and Theory*. New York: John Wiley, 1966, 406 pages. \$6.95

Sarason, Irwin G. *Personality: An Objective Approach*. New York: John Wiley, 1966, 670 pages.

Slater, Philip E. *Microcosm: Structural, Psychological and Religious Evaluation in Groups*. New York: John Wiley, 1966, 276 pages. \$7.95

Atkinson, J. W. & Feather, N. T. (Eds.) *A Theory of Achievement Motivation*. New York: John Wiley, 1966, 392 pages. \$11.50

Smith, Margeret R. (Ed.) *Guidance-Personnel Work: Future Tense*. New York: Teachers College Press, 1966, 176 pages. \$7.75

Goldberg, Miriam L., Passow, A. H., & Justman, J. *The Effects of Ability Grouping*. New York: Teachers College Press, 1966, 254 pp. \$7.00

Ghiselli, E. E. *The Validity of Occupational Aptitude Tests*. New York: John Wiley, 1966, 155 pages. \$7.95

Kantor, R. E. & Herron, W. G. *Reactive and Process Schizophrenia*. Palo Alto: Science & Behavior Books, 1966, 184 pages.

Hudson, Liam. *Contrary Imaginations: A Psychological Study of the Young Student*. New York: Schocken Books Inc., 1966, 189 pages. \$4.95

Szondi, Leopold. *Schicksalsanalyse*. Basel/Stuttgart: Schwabe & Co., 1965, 529 pages.

Excerpts From Letters Regarding Journal Name

From Bernard I. Murstein, Connecticut College:

"In your editorial of October 1966 you call for some views on the appropriate title for the Journal. I agree with Dr. Gravitz about the current emphasis on projective techniques as but one method of assessment among others. Formerly, there were basic philosophical differences between the adherents of projective techniques and the quantitative numerologists. I believe this distinction is rapidly disappearing.

The *Journal of Personality Assessment* would be a good title from a comprehensive point of view. It has, nonetheless, certain difficulties. There are numerous organizations and journals which deal with this topic already; the APA *Journal of Consulting and Clinical Psychology*, *Journal of Clinical Psychology*, *Journal of Personality*, etc. What we need, paradoxically, is a broadening of coverage in our Journal, but also a specific identity distinguishing us from other periodicals. I wonder therefore whether a title like the *Journal of Perceptual Assessment* might not be suitable. This title would be most consistent with the historical roots of our organization since all projective techniques are perceptual instruments. At the same time, we might now include other types of perception such as person perception and non-projective perceptual tests. Our list of topics covered would be broad but not completely catholic. Personality assessment not dealing with perceptual processes such as, for example, behavioral differences (apart from perceptual ones) between schizophrenics and normals and outcomes of psychotherapy using different methods would not fall under the rubric of Perceptual Assessment. There may well be better titles than this one, but I think a specific identity is necessary to preserve both the Journal and the Society." . . .

From Leonard Handler, The University of Tennessee:

... "By the way, let me also take this opportunity to support the suggestion of Gravitz of shortening the name of the Society to the Society for Personality Assessment (along with the concomitant change in the title of the Journal)." . . .

From Steven G. Vandenberg, The University of Louisville:

... "How would the following title strike you for the Journal on Projective Techniques? *The Journal of Clinical Assessment* (and of individual case study). The part in parentheses perhaps to be printed in small type." . . .

From Alcon G. Devries, The University of British Columbia:

"I vote for a change of name to *Journal of Personality Assessment*."

From Gilbert M. Trachtman, New York University:

"I would tend to oppose broadening the name of our Society and Journal to something like "personality assessment", although obviously projective instruments are but one part of the input to the psychologist. Nevertheless, there should be a place for specialized literature concerning this particular type of input, even for the catholic clinician who utilizes myriad inputs in making assessments. There are many other journals concerned with the practice of clinical or consulting psychology, with tests and measurements, etc. The *Journal of Projective Techniques* has represented a concentrated dose of projective literature which has made it something special—as a journal of personality assessment it would gradually lose identity."

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RORSCHACH TEST WORKSHOPS

The Department of Psychology, the University of Chicago, is pleased to announce that Dr. S. J. Beck will again conduct two workshop seminars in the Rorschach Test.

The seminars will be held June 19-23, and June 26-30, 1967.

For further information, please write to:

Rorschach Workshops
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1967 Annual Workshop in Projective Drawings

The Annual Workshop in Projective Drawings will be held in New York City and will be conducted by Emanuel F. Hammer, Ph.D., and Selma Landisberg, M.A. The Basic Workshop will meet July 24th, 25th, and 26th from 10 a.m. to 12 p.m. and from 1 p.m. to 3 p.m. daily, and will provide a grounding in fundamentals and go on to considerations of differential diagnosis. The Advanced Workshop will meet July 26th, 27th, and 28th from 10 a.m. to 12 p.m. and from 1 p.m. to 3 p.m. daily, and will deal with the appraisal of psychodynamics, conflict and defense, psychological resources as treatment potentials, and projective drawing usage in therapy. *The Clinical Application of Projective Drawings*, Charles C. Thomas Publisher, Springfield, Ill., which is again available in print, is suggested as preparation for the workshop.

Information regarding admission, fees, and requirements may be obtained by writing to Miss Selma Landisberg, 166 East 35th Street, New York, New York 10016.

Studies of Rorschach Content: A Review of Research Literature

Part II; Non-Traditional Uses of Content Indicators¹

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Research Institute of Life Sciences, Worcester State Hospital
and LESLIE PHILLIPS
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Summary: This paper deals with the extension of research on Rorschach content to new modes of scoring and classifying test responses that lie outside of the conventional classification scheme. Four avenues of going beyond the traditional content categories are presented and reviewed: study of subdivisions within the units of the generally used scoring system, exploration of the symbolic meaning of Rorschach responses, investigation of constellations of content signs, and development and validation of content scales. Little systematic work has been done in the first two areas of endeavor. As far as the latter two research topics are concerned, the evidence accumulated suggests that, at best, scales and signs derived from content yield overlap, and not correspondence, with their respective real-life referents. The study of mediating variables that act to magnify or reduce the extent of this relationship has merely begun and remains the major unfulfilled task in Rorschach content research.

The present paper is the second in a series of three articles on the behavioral correlates of Rorschach content characteristics. In the preceding portion of this survey, (Draguns, Haley, & Phillips, 1967), our concern was with the research which made use of the conventional scheme of classifying Rorschach content. We now proceed to examine studies whose authors have gone beyond the traditional content categories in attempting to explore the significance of themes, signs, or scales which are derived from subjects' protocols.

The development of less categorical and more inclusive approaches to the study of test content may well have been retarded by Rorschach's own disparaging attitude toward an intensive exploitation of content clues. It is well known that Rorschach regarded the inkblot series as principally a "formal," perceptual avenue toward exploring person-

ality. Specifically, he wrote: "The problems of the experiment deal primarily with the formal principles (pattern) of the perceptive process. The actual content of the interpretations comes into consideration only secondarily" (Rorschach, 1942, p. 181). Yet, the trend toward a more exhaustive utilization of content data was also foreshadowed in Rorschach's own posthumous writings (see Rorschach, 1942) and was implemented, on the clinical level, in a number of early classical published case studies (e.g., Furrer, 1925; Oberholzer, 1924).

Almost two decades later, a more intensive use of content information found its way into systematic Rorschach investigations. A Swiss paper by Mohr (1941) and a number of publications by Lindner (1944, 1946) in this country stand as landmarks in initiating the systematic exploration of hitherto neglected aspects of Rorschach content. Lindner's work in particular has been influential in sparking a major trend of American Rorschach research. The specific value of Lindner's contribution, heuristically and substantively, will be discussed in its proper context later in this paper. At this point, it may be sufficient to reiterate his contention that "the content aspect of Rorschach work has generally

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and unjustifiably been underworked" (Lindner, 1944, p. 788).

In general terms, four areas of investigation have been opened as the result of the recognition that the interpretive value of content is not adequately encompassed in the traditional categories of classification. First, there has been a smattering of reports concerned with the psychological correlates of specific responses within the categories of the traditional scoring system. Second, a related but more complex approach has focused upon tracing the hidden and symbolic meaning allegedly associated with particular kinds of Rorschach content. Third, a productive strategy in this area of research can be traced to a specific suggestion by Lindner. This approach aims at extraction of indices, singly or in combination, that would reflect specific psychopathological conditions or more general affective states. Finally, a number of investigators have endeavored to take into account the frequency, as well as the intensity of content manifestations of a behavioral characteristic or a motivational state. This mode of operation has led to the development of content scales which are presumably associated with a variety of personality or psychopathological variables. The substance of the present paper is devoted to a consideration of the empirical yield of the above four areas of research.

Response Classifications Within Traditional Categories

Several types of work will be reviewed under this general heading. In separate sections, we will deal with the following three areas of investigation: subdivisions within the inclusive rubrics of A, At, H, and others; specific contents that are not readily subsumed in any of the conventional broad categories, such as "masks," "eyes," or "teeth," and "popular" responses, as defined by Beck (1950), Klopfer, Ainsworth, Klopfer, and Holt (1954) and Piotrowski (1957).

Subdivisions of Content:

There are only a few scattered studies

concerned with the correlates of specific varieties of responses classified within the traditional categories. In reference to A, authors of several normative studies, such as Kuhn and collaborators in Switzerland (Kuhn, 1963), and Vorhaus (1944) in this country, have been concerned with the differential frequencies of several species of animals in the Rorschach protocols of adult or child subjects who differ in age or in sex. Their results are too specific and specialized to be systematically summarized here. Of potential psychodynamic interest, however, is the observation reported by Kuhn (1963) that snakes are more often given by prepubescent boys than girls. According to the above Swiss investigator, this sex difference is dramatically reversed in adolescence and this reversal continues to hold, albeit in attenuated form, upon the comparison of adult men and women.

An early psychosomatic study by Booth (1946) is noteworthy as it introduced separate scores for the number of responses referring to warm-blooded and cold-blooded animals, respectively. This dichotomy was productive of significant differences among the several clinical groups tested by Booth. Thus, the hypertensive group was found to exceed both arthritic and Parkinsonian patients in the number of warm-blooded animal responses. More importantly, the distinction proposed by Booth (1946) has been incorporated into two more elaborate content scoring schemes, introduced by Orr (1958) and Pruitt and Silka (1964), respectively. Their contribution will be discussed in a later portion of this paper. For the time being, it may be worth mentioning that Booth's study is one of the few that included an intergroup comparison of the frequencies of several species of animals. It was found that eagles, sheep, and beasts of prey contributed to the differentiation of the populations investigated. Another axis of differentiation, that of "large" versus "small" animals, is exemplified by Alcock (1963). In her study, the latter kind of response was prominently encountered in the records of asthmatic

children, as compared with normal and hospitalized controls.

Of a markedly more limited scope is the recent investigation by Sapolsky (1964) who, in a psychodynamically oriented research project, concentrated upon only one kind of animal response, that of "frog." Proceeding from the interpretive significance attributed to this content in psychoanalytic theory and in the clinical Rorschach literature, he predicted and demonstrated the relationship between the presence of eating disturbance and the occurrence of this variety of response. So far, this careful study stands virtually isolated, yet it provides a model for the exploration of the interpretive significance attributed to specific contents.

In reference to the varieties of human response, two studies (Hertzman & Pearce, 1947; Tolman & Meyer, 1956) pitted the therapists' judgment of patients' dynamics against the characteristics of the H found in their Rorschach records. The former team of authors (Hertzman & Pearce, 1947) reported some encouraging, preliminary results suggestive of the reflection of specific aspects of the self-picture in the variants of the H produced. A more specific objective pursued by the latter two investigators (Tolman & Meyer, 1956), that of relating the patients' sexual identification, as revealed in therapy, to the sex of the H produced, failed of verification. Working with a specific clinical population, Brecher (1956) reported a higher representation of female figures in a sample of maternally overprotected male schizophrenics, as compared with those with a history of maternal rejection. Wernert and Durand de Bousingen (1966) observed marked differences in the nature of H given by schizophrenics differing in prognosis. Patients who went on to remission produced in their acute psychotic state H with mythological, playful or oral regressive connotations; the H responses of individuals who subsequently became chronic patients were, by contrast, marked by dissociation, hostility, and imputation of specific intentions to the figures seen. Alcock (1963)

noted that H devoid of sex identification were prone to occur among hospitalized asthmatic children. In a study of test correlates of anorexia nervosa, Hiltmann (1963) included "mutilated human figures" among the indices which differentiated patients presenting that symptom from those free of this form of pathology. Finally, the phenomenon of "confusion between humans and animals" has been noted (Heuyer, Shentoub, Raush, Jampolsky & Rivet, 1956) in the context of a variant of childhood schizophrenia generally characterized by florid and open expression of pathology in the Rorschach protocol.

In contrast to these, promising but scattered, efforts, Zubin, Eron and Schurmer (1965) have introduced three scales that would systematically accommodate differences within the category of H. These scales refer, respectively, to the human-like content of responses, on the axis from angelic to monstrous, to their pleasing vs. debasing character, and to their ascendent vs. submissive connotations. The contribution of the above authors has so far been limited to the development of these scales. Except for an unpublished doctoral dissertation by McCall, cited by Zubin, et al., no empirical results with the above three measures have as yet been reported.

Within the classification At, two lines of investigation have been pursued. A few normative studies (De Renzi, Isotti & Saraval, 1957, 1958) have included data on the respective frequencies of bony and visceral At responses. The only positive result that has emerged from these studies is that of differences along sex lines in these subcategories of At; men tended to produce skeletal responses and women, internal organs (Kuhn, 1963). On the basis of these, and other, unpublished findings, Kuhn (1963) ventured the suggestion that skeletal responses reflect the operation of an "intelligence complex" compounded of intellectualization and pretentiousness, while visceral responses express a turning inward of one's concerns and energies. Skeletal At responses were also studied in reference to their occurrence in several psychoso-

matic and in neurotic groups, with negative results (Barendregt, Aris-Dijkstra, Diercks & Wilde, 1961). The other approach to the study of specific At responses is provided in the work of these investigators who have sought in the kinds of At produced by organic or psychosomatic patients a direct reflection of their organ pathology. The results of these studies are inconsistent. Zolliker (1943) reported a disproportionately high incidence of responses pertaining to digestive tract among sufferers from gastro-intestinal disorders. Péchoux and Defayolle (1950), on the other hand, found no tendency in a sample of pulmonary tuberculosis patients to produce "lungs" or related contents.

Within a more dynamic framework, several varieties of sex responses have also been investigated. Zolliker (1943) found high representation of female sex responses in depressed pregnant women, coupled with a virtual absence of male genital response in either an overt or symbolically disguised form (e.g., "pointed objects," "snakes").

All of this work, however, although potentially valuable in detail, adds up to a scattered picture when viewed in toto. The efforts of a number of Swiss investigators coordinated by Kuhn (1963) hold the promise of providing a more systematic store of knowledge as to the behavioral referents of sub-categories of Rorschach content. The above research workers have been engaged in a normative study of the variants of the several traditional rubrics of content classification. The work on A and At, as well as Geo and Obj. has been completed and, to the extent that it is available to us through a secondary source (Kuhn, 1963), has been included in our coverage. A monograph exclusively devoted to blood responses, and several variants thereof, (Künzler, 1963) further exemplifies the approach of the Swiss students of content as it provides normative statistics as to the occurrence of blood responses in their various manifestations in a wide range of normal and psychiatric populations. The results of this work cannot be summarized here, except

for saying that the occurrence of different varieties of blood response (e.g., animal blood, human blood) has been associated with a number of sociological and psychopathological variables.

Specific Contents

A number of other studies pertain to restricted varieties of Rorschach responses that lie outside the broad general categories of content. Prominent among these is the extensive study by Kuhn (1944) which was conducted within a clinical phenomenological framework and hence is devoid of any systematic quantitative information. Nonetheless, Kuhn's careful clinical observation may provide hypotheses for more systematic future research. According to this Swiss author, masks are associated with disturbances in identity formation and germane to the defense of denial, i.e., the maintenance of a psychic balance "half-way between euphoria and horror." The pathological conditions accompanied by the production of mask responses are, according to Kuhn, phobia, hysteria, and depersonalization. Beyond these general conclusions, the above investigator distinguished three varieties of masks, which, on the basis of his data, never occur in the same Rorschach protocol: masked faces seen in full-face, those seen in profile, and representations of entire masked or costumed figures. Kuhn connected each of these three variants with specific disturbances in the formation of the self. A detailed discussion of these findings cannot be justified in view of the rarity of the responses category considered. More specific facets of the interpretive meanings of mask responses were highlighted in a recent study by Schachter and Cotte (1963) who found the presence of this content linked with the expression of aggression by the patient in a socially disapproved manner, or with a history of social disapproval directed at the patients' families. Furthermore, in two American investigations (Vinson, 1960; Du Brin, 1962) mask responses contributed to the differentiation of schizophrenic samples from non-psychotic controls.

The clinical significance attributed to "eyes" in the Rorschach textbooks has not only generated research but provoked controversy. Wertheimer's (1953) report appeared to put to rest one of the more widely held beliefs in psychodiagnostic testing, that of the alleged association between eye content and paranoid ideation. More recently, however, Du Brin (1962) produced positive evidence of the above relationship. The controversy between the two investigators is easily reconciled once the differences in their procedure are taken into account. Wertheimer included in his tally every reference to eyes whether this content was embedded within a more inclusive percept or occurred in isolation. By contrast, Du Brin limited himself to the more focussed and circumscribed references to eyes as the central aspect of the response.

There is also an isolated report on the rare content of "teeth" which, according to Cotte (1964), is typically found in the records of individuals characterized by aggressive behavior or the background of a broken home. In two other investigations, "teeth" were characteristically associated with schizophrenia in both adults (Hertz & Paolino, 1960) and children (Heuyer, Shentoub, Raush, Jampolsky & Rivet, 1956). In the latter group, the above response appeared typically in cases of florid and serious pathology.

"Rock" and "rocky landscape" responses have been explored in a preliminary normative study restricted to a clinical sample of psychiatrically hospitalized patients (Durand de Bousingen, 1952). Within that group, rock responses typically occurred in schizophrenic or schizoid, and, with a somewhat lower frequency, in psychopathic patients. In adolescents and children, the presence of this content tended to be associated with a history of family strife or institutional placement. In adult schizophrenics, moreover, "rock" responses have been found characteristically in the records of patients with poor prognosis (Wernert & Durand de Bousingen, 1966). By contrast, "cloud" and "water"

were among the contents which, in the same study, occurred predominantly among acutely disturbed schizophrenics whose prognosis was favorable.

Even the highly unusual categories of alphabetical and geometric responses have been the objects of a separate investigation (Orme, 1963) and have been found to occur exclusively in psychosis. Within that diagnostic category, these percepts were contributed by the relatively older, more intelligent, and more responsive schizophrenics. The results of two French teams of investigators (Delaunay, Pichot & Perse, 1958; Duran, Pécoux, Escafit & Davidou, 1949) point to the pathognomonic value of "birth" responses as an indicator of schizophrenia. Among schizophrenics, moreover, birth responses have been found to be indicative of poor prognosis (Wernert & Durand de Bousingen, 1963). Other specific contents that have been associated with schizophrenia, at least in one study (Hertz & Paolino, 1960), include germs, bacteria, and "coverings."

Beyond the traditional divisions of content, the Uruguyan psychologist, Carbonell de Grampone (1952a, 1952b) went on to identify contents that were typical of school-age children. These included: vague percepts such as "smoke" or "island," percepts related to home environment, e.g., "shoes," "candles," and direct reflections of school concerns, e.g., "maps."

Finally, in the border area between the study of content and research on determinants, one may note the exploratory contributions of Caruso (1949) and Wellisch (1949) who were concerned with the interpretive value of musical and auditory, gustatory, and thermic responses, respectively.

Popular Responses

This category of response has been principally investigated in relation to three problem areas: its interpretive significance, cultural influence, and the effect of psychopathology. To start with the last of the above three con-

cerns, the number of popular responses does not appear to differentiate neurotics from psychotics (Molish, 1951; Warner, 1951), yet normal groups appear to produce more populars than either schizophrenics or neurotics (Molish, 1951). In reference to intercultural contrasts, Hallowell (1945) has pioneered the use of popular responses in the culture and personality research on several American Indian cultures. Proceeding from Hallowell's encouraging findings, culturally mediated differences in the component responses within the popular category have been reported from Hawaii (Bloom, 1962), Taiwan (Yang, Tzuo & Wu, 1963), and Peru (Léon & Sánchez García, in press). The latter study is particularly interesting in demonstrating the sensitivity of P, defined according to the standard United States textbooks, as a differentiator of Peruvian migrant groups at several levels of acculturation to the urban setting. Finally, one may point to a few investigators who have addressed themselves to a systematic study of specific popular responses in relation to personality variables. Along these lines, Cerf (1957) concentrated on the interpretive meaning of several varieties of animals given in response to D1 of Card VIII. Her qualitative, semi-clinical findings bear in particular on the contrasting personality characteristics of subjects who report "bears" and "rats" respectively. The former response allegedly indicates a dependent and nurturant orientation, the latter is associated with realism, self-reliance, and distrust. According to Cerf, subjects who give "bears" are dreamers, those who report "rats" are realists. More systematic in its evaluation of pertinent evidence is the report by Hammer (1966) who was interested in the psychopathological concomitants of seeing in the popular area of Card III a person opposite in sex to the respondent. His results led to the conclusion that male H given by a woman, in the above location, appears indicative of emotional disturbances; findings for men appeared to be more complex and less conclusive.

Conclusions

Few general statements can be derived from the scattered and heterogeneous accumulation of research reviewed so far. Substantive findings are unsystematic and isolated, but two models worthy of future emulation stand out. One is provided in the thorough and methodical fractionation of content categories, as undertaken by Swiss investigators. The other, exemplified in the psychodynamically oriented research by Sapolsky, proceeds from the single variety of content, and is concurrently concerned with the subjective meaning and the behavioral referent of that response. The paucity of research in this area is all the more remarkable as several of the contemporary text book authors (Brückner, 1957; Phillips & Smith, 1953; Schafer, 1954) as well as a number of other prominent proponents of content analysis (Brown, 1953; Lindner, 1946; Lubar, 1948; Mohr, 1941) assign explicit interpretive meaning to specific variants of Rorschach content. Their statements are based on clinical experience and evidence and, for the most part, await verification by means of more systematic research techniques.

Finally, we note in passing that the work reviewed so far has been predicated upon breaking up the established content designations into more narrow units. It is, of course, possible to proceed in the opposite direction, by fusing the conventional categories into more inclusive groupings. Yet, remarkably, this approach is virtually absent from the research literature. Apart from Orr's proposed work as the "object relations scale," which should be more appropriately reviewed later, we can only point to one proposal, that by Alcock (1963, p. 66). This British Rorschach expert suggested dividing responses into four groups: "living objects," "human or animal forms perceived as inanimate objects," a buffer group "subsuming all content that is external to the perceiver and relatively neutral in character," and "a disturbing content group" encompassing percepts with a "strong affect-

tive charge." As far as we know, Allcock's classification scheme has, as yet, not been implemented in empirical research.

Symbolic Meaning of Rorschach Responses

In the preceding section, we presented information on the behavioral correlates of subcategories, or specific variants, of Rorschach responses. Our attention now shifts to a related, yet distinct area of investigation: that concerned with the subjective meaning of Rorschach percepts. Basic to this research topic is the assumption that the Rorschach percept, like the dream, is a multilevel communication. Proceeding from this premise, a variety of methods have been tried in order to bridge the gap between the manifest and latent contents of a Rorschach response. Yet, there has been little systematic or concerted effort within the context of Rorschach content studies which is devoted to the exploration of any one of these avenues purporting to reach the level of unconscious fantasy. Consequently, we will limit ourselves mainly to the presentation of a catalogue of the techniques employed and will only briefly touch upon the substance of the findings obtained which, for the most part, remain scattered and unreplicated.

Free association appears to be the oldest of the several techniques used to elicit the symbolic value of Rorschach responses. Episodic applications of this method go back to Furrer's (1925) work in Switzerland and Earl's (1941) work in England. More systematically, Goldfarb (1945) concentrated on the associative value of animal content produced by children, especially as it pertained to family members and other significant human figures. According to Goldfarb, adults more often than children were associated with large animals and cruel adults were more frequently associated with aggressive animals while kind adults were typically evoked by domestic animals. A related approach has been used by Buss and Durkee (1957) who limited themselves, however, to eli-

citing associations to animals in normal and psychiatric adult subjects, without evoking these associations in the context of actual Rorschach presentation. Nonetheless, they related their findings to the symbolic meaning of Rorschach content, as hypothesized by several textbook authors (Brückner, 1957; Phillips & Smith, 1953). Their conclusion was that few parental figures are associated with specific animals. Loving mother apparently is linked with cow or deer, while bull is associated with domineering father and little children, with diminutive animals. On the negative side, the symbolic meaning attributed to bear, horse, ape, eagle, spider, and octopus in the clinical literature was not corroborated. Other investigators addressed themselves to the more general connotations of Rorschach percepts. Thus, Sappenfield (1961, 1965) concerned himself with the placement of specific Rorschach contents along the masculine-feminine and repellent-attractive axes. Rychlak (1959) relied upon forced associations in attempting to establish links between Rorschach contents and such affective concepts as "security," "love," "anger," and "depression." As a sequel to this study, the empirical referents, in the form of personality questionnaire responses, of the responses carrying specific symbolic connotations, were ascertained (Rychlak & Guinouard, 1961). In the authors' words, "interesting parallels were noted between the present findings and the forced associations of the earlier study."

Peculiarly, the Semantic Differential which has played a prominent role in the studies of the stimulus value of Rorschach cards and areas, has barely been applied to the exploration of the broader aspects of the meaning of test content. We can only point to the reports by Goldfried (1963) and Goldfried and Kissel (1963) who studied the differential connotations of several species of animals but dealt with these concepts outside of the context of actual Rorschach protocols. To judge from their results, the Semantic Differential technique appears to be more sensitive in revealing the alleged stimulus properties of ani-

mal responses than the more conventional method of free association. Such concepts as "ape" and "alligator" were judged to be low on evaluation scales and high on the dimensions of activity and power; the same was true, but to a lesser extent, of "bats" and "bears"; the positive pole of evaluation in the above study was represented by such species as "butterflies," "cows," and "monkeys." Proceeding from these suggestive results, it would appear worthwhile to extend Goldfried and Kissel's approach to the study of actual Rorschach responses. Loisel and Kleinschmidt (1963) have done that, but, in their published report, they refrained from the presentation of specific Rorschach contents. Rather they stressed the more general findings, tangential in the present context, of a high degree of correspondence between the ratings for blot areas and those for the contents of their subjects' responses.

Other techniques of going beyond the manifest content of Rorschach responses have been only episodically employed. We may mention the report of Allen (1957) who, with partial success, attempted to trace the origin of striking and recurrent content in Rorschach protocols of his own child to actual, real-life events. On a larger scale, the significance of recurrence of specific contents has been longitudinally investigated by Ames (1960). She noted that two varieties of content tended to reappear in the subjects' records throughout the span of the investigation: the popular and unimaginative, and the idiosyncratic and original.

An unusual approach to the problem of symbolic meaning was contributed by Moss (1957) who was surprised to discover a striking degree of correspondence between symbolic interpretations of Rorschach content offered by hospitalized schizophrenics and those proposed in the clinical Rorschach literatures. Moss' results may either be interpreted as an impressive validation of the clinically hypothesized symbolic meaning of Rorschach responses or as a telling testimony to the "transparent" nature of

these symbols. The use of hypnosis is represented in the early study by Earl (1941) that has already been discussed in another context.

Thus, we are faced with a heterogeneous accumulation of experimental strategies which, so far, have yielded only a few scattered findings. Such basic questions as those concerning the existence of a unitary symbolic meaning of specific Rorschach responses, or the correspondence of this meaning, if any, with that hypothesized by several varieties of psychodynamic theory, remain unanswered. Moreover, the writings of the principal proponents of intensive content analysis remain a rich mine of clinically derived but experimentally unverified hypotheses that could be tested by means of several techniques which have already been discussed.

There is, however, one area of related Rorschach research that has been the object of a somewhat more systematic investigation. This group of studies centers on indirect, veiled representation of sexual content. Two trends in this research area may be discerned. In this country, a number of authors (Charny, 1959; George, 1953; Pascal & Herzberg, 1952; Pascal, Ruesch, Devine & Suttall, 1950; Shaw, 1948) selectively studied responses to particular inkblot areas which allegedly carry particular sexual connotations. In Europe, Péchoux and Defayolle (1952) encompassed the entire test protocol in their search for indirect and symbolized representations of sexual content. Within the former group of studies, testing the limits and other related procedures have been prominently employed. In the latter group of investigations, the authors adhered to the more conventional mode of Rorschach test instruction.

The conclusions of American investigators bear on a number of points. First, there appear to be inkblot locations which, under conditions of special facilitation, elicit an increased number of manifest or symbolic sex representations (Charny, 1959; Shaw, 1948). Second, different cards exercise a selective pull toward male or female sex percepts

(Charny, 1959; Shaw, 1948). Third, sexual responses elicited by means of testing the limits contribute little to the diagnostic differentiation in the area of sexual deviation (Pascal & Herzberg, 1952; Pascal, et al., 1950) but may be of some value in contrasting non-psychotic subjects in psychiatric treatment and normal controls (Charny, 1959). Finally, there is evidence that the sexually suggestive cards are among the ones least often preferred (George, 1953).

Turning to the European approach, Péchoux and Defayolle (1952) included in the category of symbolic sex representations all responses that resembled male or female genitalia in form or function. Moreover, they distinguished masculine, feminine "indeterminate" and "uncertain" sex responses, either manifest or symbolic, and similarly broke down sex-related percepts into "aggressive" and "non-aggressive," or, to conform to the American psychoanalytic usage, "active" and "passive" categories. Their own normative study of this multidimensional scheme yielded promising sex differences in the predominance of symbolic masculine and feminine responses and somewhat less clear-cut results in reference to the occurrence of symbolized passive and active responses in groups differing in sex, age, education, and delinquent versus non-delinquent status. Overt sex responses, on the other hand, were so rare as to make their statistical analysis unproductive. The only two other applications of Péchoux and Defayolle's promising classification scheme that have come to our attention are those by Péchoux and Tocheport (1956) and by Gilberti and Gregoretti (1954). The former study pointed to the shift toward masculine symbolic responses in adolescent boys compared with male preadolescents. The latter study contributed information on the incidence and interrelationship of several of the Péchoux and Defayolle indices in groups of psychiatrically hospitalized women. Of particular interest is the report of the above Italian investigators on the relationship between symbolic and direct expression

of sexual content. The nature of this relationship varied in the two principal psychodiagnostic groups investigated. Among psychotics, high frequency of disguised sex responses characterized protocols devoid of explicit sex reference; among neurotics, incidence of symbolization was elevated in subjects whose records contained overt sex responses. This potentially important finding is based on small subgroups of subjects and rudimentary statistics as the baselines for the occurrence of sex responses are low. To explore its relevance for the concept of vicarious functioning, crossvalidation and extension of Gilberti and Gregoretti's research is needed.

More generally, the above studies are predicated on the assumption that symbolization of sexual content can be determined on a logical, rather than empirical ground, i.e., by invoking formal or functional similarity between the symbol and the thing symbolized. Approaches summarized in the initial portions of this section, e.g., free associations, hypnosis, Semantic Differential, could be profitably employed in ascertaining the empirical, rather than the rationally derived, relationship between the symbol and its referent. Moreover, other techniques prominent in the experimental study of perception, e.g., those of subliminal stimulation, might be useful in tracing the actual course of symbolic transformation of sexually, or aggressively, arousing Rorschach associations.

Constellations of Signs

So far, we have reviewed research on the subjective and behavioral correlates of specific Rorschach responses or narrowly delineated groups of content. In the sections that follow, we will be concerned with studies that combine these two approaches. This has been done in constructing series of signs which, on the basis of psychodynamic theories, are thought to represent symbolically the drives or conflicts active in a specific, usually maladaptive, behavioral state. In particular, homosexuality, alcoholism, suicide, a variety of psychophysiological

conditions, and drug addiction have been studied in relation to their alleged dynamic reflections in Rorschach content.

Homosexuality

Contents. Lindner (1944, 1946), Bergman (1945), and Due & Wright (1949) were among the first to propose lists of Rorschach responses, identified as to content and location that are allegedly indicative of homosexuality. Somewhat later, Wheeler (1949)⁴ constructed a set of twenty Rorschach percepts for the differentiation of homosexuals. More general lists, defined in terms of themes and not tied to specific blot areas, have been contributed by Fein (1950) and by Schafer (1954). Although these several constellations of signs differ among themselves, they overlap in emphasizing a number of general themes: oral and anal imagery, feminine and esthetic content, mutilation and anatomy, and representation of human figures in an unreal, camouflaged, or masked fashion.

Samples. The populations tested in validating the above indices present a heterogeneous spectrum of psychological, economic, and social characteristics. The use of male homosexuals has been predominant, although two of the earlier authors (Lindner, 1946; Reitzell, 1945) included both men and women in their samples and two recent investigations were concerned with female homosexuals exclusively (Armon, 1960; Ferracuti & Rizzo, 1958). In terms of social characteristics, four pools of subjects have repeatedly been utilized: college students (Davids, Joellson & McArthur, 1956; Fein, 1950) clinic patients (Heredia Carillo, 1966; Kataguchi, 1964; Kernberg, 1957; Nitsche, Robinson & Parsons, 1956; Wheeler, 1949), military personnel (Bergman, 1945; De Luca, 1966), and prisoner populations (Ferracuti & Rizzo, 1956, 1958). Exemplifying a different ap-

proach, there are two studies (Armon, 1960; Hooker, 1958) whose authors enlisted the aid of organizations within the homosexual community in selecting subjects. As far as the situational context is concerned, subjects have variously been tested in a therapeutic (Heredia Carillo, 1966; Kataguchi, 1964; Kernberg, 1957; Nitsche, 1956; Wheeler, 1949) research (Hooker, 1958; De Luca, 1966), or legal setting, including under the latter heading investigatory (Yama Hiro & Griffith, 1960) penal (Ferracuti & Rizzo, 1956, 1958) and probational (Reitzell, 1945) situations. It has been forcefully suggested (Hooker, 1958) that all of the above variables may affect the content of the Rorschach protocols produced. We have found, however, no investigations that specifically include several of the above variables in the research design and that empirically assess their effect upon the Rorschach protocol. Other characteristics that are potentially relevant but which in some of the early studies have been disregarded or allowed to vary randomly within and across both experimental and central groups include intellectual level, marital status, and level of psychological adjustment.

All of the above variables are pertinent to the problem of choosing appropriate control groups. In the early research, this issue received relatively little attention. More recent studies provide examples of a number of needed methodological refinements. These include careful exploration of the sexual background of the control group, in order to exclude subjects with a history of homosexual experience (Hooker, 1958), and individual matching of subjects in a number of relevant social and psychological characteristics (e.g., Ferracuti & Rizzo, 1958, Hooker, 1958).

Results. Both chronologically and conceptually, one may distinguish four stages in the study of the relationship between Rorschach content and homosexuality. In the first two phases, derivation of the various indices of homosexuality and their validation in new and different groups were the principal concerns. In the third and fourth stages,

⁴ The recent evaluative article by Goldfried (1966b), devoted to the research uses of Wheeler's index, came to our attention after this review had been prepared for publication. The reader interested in a more detailed appraisal of this specific approach to the detection of homosexuality from Rorschach content is referred to Goldfried's thorough and sophisticated critique.

the investigators' interest shifted to more specialized problems: those of latent homosexuality and of individual differences within homosexual groups.

The earlier examples of research in this area shade off into the realm of extensive, but only partially systematized clinical observation. Such is the case with the evidence on which Lindner's (1944, 1946) original homosexuality indices are based. Bergman (1945) derived his signs from the comparison of the records of a small number of homosexuals with the norms for the general army population. Fein's (1950) conclusions followed from a small group of college students. Due and Wright (1949) used a somewhat larger group which, however, included both overt homosexuals and individuals beset by homosexual conflicts. Wheeler (1949), whose signs have been more extensively investigated than any other index, originally intended to establish separate norms for three degrees of homosexuality: overt, suppressed, and repressed. Unfortunately, these groups of subjects were too small to justify separate statistical treatment. Consequently, Wheeler's published list of signs was developed upon the consideration of the entire pool of latently or manifestly homosexual individuals. It is paradoxical that this constellation of indicators, which has subsequently come to be applied mainly to groups of overt homosexuals, is traceable to the responses of a sample which, in its majority, was not known to be behaviorally homosexual.

Nonetheless, Wheeler's twenty items have repeatedly been demonstrated to have merit in differentiating overt male homosexuals from their heterosexual, normal, or neurotic counterparts (Davids, Joelson & McArthur, 1956; Ferracuti & Rizzo, 1956; Kernberg, 1957; Nitsche, Robinson & Parsons, 1956; Yamahiro & Griffith, 1960). Moreover, the use of Wheeler's signs has also been successfully extended to female homosexuals (Ferracuti & Rizzo, 1958). But two discordant notes are also present; Reitzell (1945) reported only a trend toward differentiating homosexuals from

alcoholics and hysterics and Hooker (1958) found that Wheeler's twenty responses contributed to intergroup contrast only when the direction of difference, and not its extent, was considered. Hooker's study is atypical in that it pertains to a group of homosexual men who were neither in legal difficulties nor under psychiatric care. It is possible that Wheeler index and similar measures relate to discomfort over homosexuality, either situationally or intrapsychically engendered, rather than to homoerotic behavior per se.

Less work has been done with the broader thematic indices. Kernberg (1957) in Chile and Kataguchi (1964) in Japan investigated the discriminatory power of Schafer's list and that of a modified version of Fein's index, respectively. Their findings referred to male samples of homosexuals in ambulatory treatment and were positive; discrimination was demonstrated not only from normal controls, but from heterosexual neurotics and psychotics as well (Kataguchi, 1964) and intergroup differences between normals and homosexuals appeared not to be traceable to neuroticism (Kernberg, 1957). But again, these promising findings appear to be limited to samples of homosexuals seeking therapy; Hooker (1958) and Armon (1960), working with male and female homosexuals, respectively, who were not drawn from clinical pools of subjects reported that Schafer's themes were non-differentiating.

In any case, the discrimination that the Wheeler signs, or the thematic measures produced, was far from complete; in all the studies reviewed, false positives as well as false negatives were present. Furthermore, not all of the indicators, when considered singly, contributed equally to contrasting homosexual and heterosexual groups. Thus, in a recent study (Heredia Carillo, 1966) it was found that only two out of 20 Wheeler's signs and seven out of 20 Schafer's themes, when examined discretely, set apart male homosexuals from controls. Compatible results have been reported by Armon (1960), Ferracuti and Rizzo

(1958), and Nitsche, et al. (1956). In general, "analitic" and "feminine characteristics" have repeatedly been found to characterize male homosexuals; among women, "disparagement of men" and "hostility toward female role" appeared to be some of the differentiating themes, and homosexuals of both sexes have tended to produce "human-animal combinations" and "frank references to genitalia." The differentiating power of responses which reflect castration anxiety is a matter of disagreement among the several investigators.

The above considerations raise the general problem of the referent of the various signs of homosexuality. Obviously, neither singly nor in combination do homosexual indices stand in a one-to-one relationship to the behavioral state that they were designed to reflect. Proceeding from this recognition and taking into account the diverse methodological imperfections of many, though not all, of the above studies, the Dutch psychologist Van den Aardweg (1964) concluded in a recent and overlapping review, that "the Rorschach is useless for the individual diagnosis of homosexuality" (p. 83). Somewhat more cautiously, we suggest that the extent and locus of the relationship in question remains open and needs to be clarified.

Is the constellation of Wheeler signs a measure of behavioral or of latent homosexuality? This question has preoccupied several investigators. Its resolution is stymied by the elusive and ambiguous nature of the concept of latent homosexuality. No generally acceptable observational referent for this state exists and the routes for the exploration of its Rorschach correlates must, of necessity, be indirect. One possible avenue of study is provided by the investigation of those psychiatric populations whose psychopathology, in the psychoanalytic view, is traced to unresolved homosexual conflict. With this objective, Chapman and Reese (1953) compared a very small group of acute male schizophrenics with normal controls. The former exceeded the latter in the number of responses

that imply fears of castration, sexual preoccupation, confusion of sexual identity, and related themes. The authors concluded that, in the course of schizophrenic decompensation, the patient "passes through a period when homosexual drives are significant and prominent" (p. 32). Compatible results have been reported from an exploratory study by Bergman (1945). In a more definitive project, Aronson (1952) established the enhanced incidence of Wheeler signs in a sample of male paranoid schizophrenics, as compared with appropriate controls. By contrast, the results of Meketon, Griffith, Taylor and Wideman (1962) who also dealt with a group of paranoids, were more equivocal. Finally, anticipating the topic to be broached in the next section, remitted alcoholics were distinguished from unremitted ones by means of higher scores on a modified and abbreviated version of the Wheeler index that had, on pretest, successfully contrasted homosexuals and non-homosexuals (Machover, Puzzo, Machover & Plumeau, 1959).

The above findings suggest that the utility of homosexual signs is not exhausted upon their application to overtly homosexual groups. As a counterpart, two recent studies (Coates, 1962; De Luca, 1966) point to the possible value of content criteria in differentiating individuals within a behaviorally homosexual population. According to the former author, patients who, in the course of psychotherapy, move toward a heterosexual adjustment give characteristically in their pre-treatment Rorschachs evidence of catastrophic reactions to Card II in the form of blood, explosion, witches, or pelvis. The latter investigator succeeded in demonstrating differences, by means of the Wheeler signs considered discretely and jointly, among several subgroups of male homosexuals varying on the dimension of passivity-activity and in the nature of the preferred modality of homosexual behavior. Unfortunately, the specific nature of these differences is not discussed in DeLuca's brief article.

Alcoholism

Samples. The basic problems raised in the Rorschach studies of homosexuals also apply to the investigations of content which alcoholics produce. There is no agreement among the authors of the studies to be reviewed on the operational definition of alcoholism. Consequently, the groups tested in the several studies differ in such important defining variables as nature of drinking habits, duration of excessive drinking, socioeconomic independence and adequacy, and degree of internal conflict.

Samples investigated were also far from uniform in education, socioeconomic background, age, marital status, and intelligence. In a few instances, several of these variables have been considered in equating or matching the experimental and control groups (Kunkel, 1963; Marks, 1959; Shereshevski - Shere, & Lasser, 1952); we can point to only one study in which the potentially interacting effects of any of these characteristics with alcoholism upon Rorschach content were specifically investigated (Kunkel, 1963). In one respect, however, the various groups of subjects are close to uniformity; with the exception of a single study that included a few women, alcoholic samples consisted exclusively of males.

Variability was considerable in the situational context in which alcoholic records were obtained. Sites of the various investigations ranged from prisons through hospitals, which included both voluntary and committed patients, to out-patient clinics. We are not aware of any studies which were conducted in an environment divorced from either a therapeutic or correctional purpose.

As far as control groups are concerned, some authors chose to contrast alcoholics' Rorschach behavior to that of groups of neurotics or psychotics of several descriptions, others decided to compare alcoholics with normals and still others included several control groups of both non-psychiatric and psychopathological composition (Griffith & Dimmick, 1949). A recent trend exemplified in two studies (Griffith, 1961; Kunkel,

1963) is toward drawing both alcoholic and non-alcoholic subjects from a maximally homogeneous pool; Griffith (1961) started out with a sample of passive-aggressive individuals some of whom were alcoholics and Kunkel (1963) employed a similar procedure in contrasting alcoholic and non-alcoholic traffic offenders.

Contents. In contrast to homosexuality, no specific content indices of alcoholism have as yet been devised. Research interest has for the most part focused on water responses and associated percepts and the broader category of oral content. Other kinds of responses taken to reflect passivity, e.g., plants, animal skins, etc., have also been occasionally explored.

Results. Findings are controversial in reference to the utility of "water" percepts in distinguishing alcoholics from controls. Positive results contributed by Griffith and Dimmick (1949), Griffith (1961) and Kunkel (1963) are paralleled by the negative findings of Marks (1959) and Shereshevski-Shere, et al. (1952). Differences in the populations tested may have contributed to these discrepancies. Griffith (1961) moreover pointed to another unexpected variable that may have been influential—that of habitat and daily scenery. Positive studies come from locations far removed from major bodies of water; negative results originated in coastal regions.

In reference to oral percepts, the most conclusive and provocative findings are those of Wiener (1956) who analyzed this type of content as produced by neurotic depressives and alcoholics. The differentiating feature of alcoholics was emphasis on positive oral imagery, at the expense of the production of hostile oral responses. Kunkel's (1963) results, pointing to the prevalence of plant and fish responses further reinforce the picture of passivity which Wiener's study suggested.

Drug Addiction

In contrast to the amount of effort expended on the search for content correlates of alcoholism, there appear to be

only two studies that pertain to the Rorschach indices of drug addiction. A subsidiary feature of Griffith and Dimmick's (1949) study already reviewed by us concerned the searching of the records of drug addicts for "water" responses and other indices allegedly associated with alcoholism. The results of that investigation suggest that in the characteristics studied drug addicts resemble more non-psychiatric controls than do alcoholics. The conclusion appears warranted that the content correlates, if any, of the two addictive states are specific rather than general. In a more recent study, Silverman and Silverman (1960) set out to investigate the nature of such correlates and found higher incidence of symbolic intrauterine representations, e.g., "caves," "houses," "vases," in the Rorschach records of heroin users, compared with those of non-drug addicts matched in age, race, education, and diagnosis. Regressive responses in general, e.g., "puppies playing," were equally prevalent in the two samples. This well designed study, which tested predictions derived from psychoanalytic theory, points the way to other similarly sophisticated approaches in the further study of content correlates of drug addiction.

Suicidal Potential

Only the first few steps have been taken toward the intensive study of content indicators of suicidal risk. Neuringer (1965) recently reviewed the broader area pertaining to all Rorschach indices of suicidal ideation and/or behavior. At this point, we will limit ourselves to a brief survey of the salient features of the few studies that incorporate content clues.

Subjects. The term "suicidal," as used by the investigators in this area, has been applied to groups with a history of suicidal attempt (Costello, 1958; Fisher & Hinds, 1951), those characterized by thoughts or intentions of suicide (Broida, 1954; Cooper, Bernstein & Hart, 1965), and mixed populations composed either of individuals falling into the above two categories (Schachter,

1957, 1958) or comprising subjects who attempted as well as those who subsequently completed, suicide (Pratt, 1951). These groups have variously been compared with normal individuals (Fisher & Hinds, 1951; Schachter, 1957), psychiatric patients of several descriptions without suicidal history or preoccupation (Costello, 1958; Broida, 1954) and, finally, samples defined on the basis of ideational (Fisher & Hinds, 1951) or behavioral (Pratt, 1951) aggression directed against others.

Contents. The investigators also differed in the choice of avenues toward a more intensive utilization of test content. In particular, three approaches may be discerned. Lindner's (1946) formulations, once again, constitute one of the points of departure. The above author stresses the clinical utility of content signs that occur in particular locations. Specific suicidal significance was attached to dysphoric responses to Card IV. In recent years, a more inclusive list of signs defined on the basis of both area and content has been identified by Costello (1958). A single sign approach has been exemplified by Sapolsky (1963) who stressed the diagnostic value of D6 on Card VII. In contrast to the above authors, White and Schreiber (1952) advocated attending to the more global affective properties of test content as indicators of an "anti-life mood." Themes of mutilation, death, fright, suspension, darkness, aggression, passivity, and restlessness were subsumed under this general heading. Somewhere midway between the two extremes, defined by White and Schreiber's and Lindner's approaches, respectively, is the orientation of those authors (Fisher & Hinds, 1951; Pratt, 1951), who, proceeding from a psychoanalytic tenets, examined the discriminating power of hostile content as a characteristic of suicidal individuals.

Results. With the heterogeneity of both subjects and contents studied, it is evident that the results can, at best, be expected to yield more promise than substance. In reference to Lindner's stress on the predictive value of dysphoric re-

sponses to Card IV, two studies (Broi-da, 1954; Schachter, 1958) produced negative results. Similarly, Sapolsky's findings that a specific Card VII detail, allegedly evocative of "womb" and "vagina" responses, is more frequently responded to by suicidal than non-suicidal groups failed to be replicated (Cooper, Bernstein & Hart, 1965). Moreover, in the light of the Fisher and Hinds (1951) study, frequency of hostile responses is not noticeably different in suicidal psychotics in comparison with clinical (i.e., paranoid schizophrenic) or normal controls. Yet, in possible contradiction of the above finding, the representation of mutilation, weapon, and fighting responses have been found to be higher in suicidal than homicidal individuals (Pratt, 1951). Other possible differentiae of suicidal risk that have been sporadically mentioned include "ice" (Pratt, 1951), "shadows," "smoke," and "clouds" (Schachter, 1957).

Two promising, if insufficiently tested, approaches remain. These are based upon Costello's (1958) list of content signs and White and Schreiber's (1952) broad and somewhat impressionistic analysis of suicidal themes. The former index, analogous in format to the Wheeler list of homosexual responses, has not been used beyond its originator's exploratory and crossvalidating investigations. Yet, its further study seems to hold promise because Costello's signs represent one of the few alleged indices of suicidal intent and/or behavior that are not predicated upon manifestly depressive or violent content. Rather, themes of passivity, evasion, and "phallic concern" are predominant. By contrast, White and Schreiber's focus was explicitly on the affective communication of "anti-life orientation." It might be profitable to compare the strengths and limitations of the above two approaches. Possibly, both indices may be useful in uncovering different kinds, or layers, of suicidal orientation.

Psychophysiological Reactions

A sizable number of Rorschach studies have accumulated as a byproduct of

the merger of medical interest and psychodynamic theorizing. If, as is frequently alleged, several varieties of intrapsychic conflict and physical dysfunction are linked, one might profitably look for the reflection of specific personality dynamics in the content of subjects' test protocols. We will first identify the varieties of content which have been utilized and then will examine the results obtained with each of the respective approaches.

Contents. Three scoring schemes of Rorschach content recur in psychophysiological research. For one, investigators have concerned themselves with symbolic representations of specific psychosexual fixations in the content of Rorschach responses or have derived scores linked to broader variables extrapolated from psychoanalytic theory, e.g., "ego-strength." Other students have drawn upon the available content scales of motive states. Finally, Fisher and Cleveland (1958a) have initiated the construction of measures directly "tailored" to the task of discriminating various psychosomatic groups. The work of the latter two authors has stimulated a concerted and vigorous research effort which, in some cases, has transcended the area of psychosomatics. We will deal with the yield of their approach in a separate section after reviewing the results of other avenues of study.

Results. Though heterogeneous in the techniques employed and populations investigated, most of the pertinent Rorschach research refers to two general issues: the differentiating features of psychosomatic populations as compared with physically healthy and/or psychiatrically normal individuals and the contrasting response patterns of patients in several psychophysiological populations that are presumed to differ in their predominant psychodynamic constellation.

In the former area, a number of studies pertain to the presumed orality of patients suffering from duodenal ulcers. Brown, Bresnahan, Chalke, Peters, Poser and Tougas (1950) were among the first to investigate the alleged prevalence of "oral" (e.g., "mouth,"

"food" etc) and "aggressive" responses in the Rorschach records of duodenal ulcer cases. Their suggestive, if not fully conclusive, results were amplified by Streitfield (1954) who reported a significantly greater number of oral-aggressive, but not oral-dependent, responses in his sample of duodenal ulcer cases, compared with controls free of gastrointestinal disorder. These findings, however, have not been substantiated in a recent study by Kanter and Hazelton (1964) who, in fact, found no significant differences in any content indices between duodenal ulcer cases and controls.

In reference to peptic ulcer, there have been studies by Marquis, Sinnett and Winter (1952) and Raifman (1957) who concerned themselves with Wheeler's indices of homosexuality and with responses indicative of "ego-strength" or of "passivity," respectively. These investigations yielded only a few scattered significant findings pertaining to such content scores.

Conforming to the same pattern are the isolated Rorschach investigations of a number of other allegedly psychosomatic disease entities; typically, in these studies Rorschach protocols of subjects falling within the relevant disease category were contrasted with members of a control group free of that pathology. Examples of this approach are provided by Fine (1948), who studied asthmatic children, and by Plesch (1951) whose experimental population consisted of patients suffering from Rosacea or excessive blushing. Although some suggestive, if, as yet, not replicated results have been obtained, these studies can be considered only as the first steps toward the systematic exploration of the psychological aspect of psychophysiological reactions.

In reference to the broader issues, our knowledge of the characteristic response patterns of the conditions investigated must of necessity remain incomplete so long as the experimenters limit themselves to the comparison of sufferers from a psychosomatic disorder with healthy, unafflicted individuals. Furthermore, the relative merits of Alexander's

"specificity" doctrine and those of the "non-specific stress" interpretation of the role of psychological conflicts in physical illness can only be resolved by including in the same investigation several psychosomatic groups which are allegedly associated with different personality constellations.

The earliest example of research of this type known to us was conducted by Prince (1949; as cited in Barendregt, et al., 1961) who demonstrated prevalence of "hostile animal" responses in bronchial asthma patients, as compared with cases of peptic ulcer. Conforming to the same orientation, Barendregt (1956, 1957) pitted the characteristic productions of bronchial asthmatic and duodenal ulcer patients against each other. It was ascertained that asthmatics produced significantly more responses expressing hostility and those connoting "confinement" and "oppression." These results are all the more significant as they represent a cross-validation of earlier findings by the same author which were obtained by means of the Behn-Rorschach test. Moreover, the above investigator was able to demonstrate a significant decrease in the number of oppression responses in asthmatic patients in the course of psychotherapy. The more recent conclusions by the same investigator, with coworkers, (Barendregt, Aris-Dijkstra, Diercks & Wilde, 1961) are somewhat less definitive. Upon comparing asthmatics with a heterogeneous group of other psychosomatic patients, Barendregt, et al., succeeded in corroborating the elevation of hostility scores in the former group. However, two other comparisons, those of asthmatic patients with a rheumatic and a non-psychosomatic neurotic group, respectively, were barren of significant findings. A long list of thematic indices including fear, flight, loneliness and playfulness that were earlier identified in an exploratory study of asthmatics by Jaspas, Prick and Van de Loo (1955) failed to be validated. Only the emphasis on "containers" and "coverings" came close to differentiating patients suffering from asthma from those

afflicted with rheumatism.

Rothstein and Cohen (1958) were interested in a wider range of conditions and included in their investigation peptic ulcer patients as well as psychoneurotics, reactive schizophrenics, sufferers from non-gastrointestinal, though somatic, disorders, and normals free of psychiatric or medical complications. The pattern of their subjects' scores on the Hostility and Dependency scales of De Vos (1952) was interpreted to be more consistent with a "non-specific stress" than a "specificity" interpretation, although these findings remain in need of further clarification. Finally, Speisman and Singer (1961) scored their subjects' protocols for all varieties of affect, as defined by De Vos (1952). Their range of research groups encompassed duodenal ulcers, other gastrointestinal diseases, hypertension, arteriosclerotic coronary disease, chronic rheumatic, and congenital cardiac lesions. In addition to these samples, the above authors tested a group of patients facing surgery for pulmonary and cardiac lesions. Of the several thematic scales used, that for Dependency yielded the most promising results as all of these groups could be ranked in a hierarchical order on that variable. Ulcer patients produced the greatest number of dependency responses followed, in descending order, by those suffering from other gastrointestinal conditions, non-hypertensive heart diseases, those awaiting surgery, and, finally, hypertensives. This study, together with the preceding few reviewed, provides the most substantial evidence yet available in support of the notion that Rorschach content may indeed reflect motive states associated with certain illnesses.

Body Image Measures. So far, the content characteristics reviewed were derived outside of the area of psychosomatic research. By contrast, the indices proposed by Fisher and Cleveland (1958a) were designed to provide a direct reflection in Rorschach content of basic dimensions of bodily experience and psychophysiological state. More specifically, the above authors proposed two

scores allegedly descriptive of the individual's body boundaries: Barrier, composed of responses that refer to coverings, containers, and enclosures, and Penetration, encompassing percepts that denote openings, intrusions, injuries, and transparency. Preliminary work by Fisher and Cleveland demonstrated that the above indices could be scored with a high degree of reliability. Their empirical correlates were sought in four areas: those of medical diagnosis, physiological dimensions, psychological characteristics, and personality change. In reference to diagnostic characteristics, Fisher and Cleveland (1958a) succeeded in demonstrating the occurrence of higher Barrier and lower Penetration scores in conditions characterized by "exterior symptoms" compared with states defined on the basis of "interior symptoms." In the above comparison, as well as in subsequent studies, "exterior" symptoms referred to pathology that principally affected the periphery of the organism, as in neurodermatitis, rheumatoid arthritis, and conversion hysteria; interior symptoms, exemplified by stomach disturbance and ulcerative colitis, were concentrated upon sites within bodily enclosures. Fisher and Cleveland's discrimination of the above two kinds of symptomatology by means of the combination of Barrier and Penetration scores has been upheld in their own work that compared cancer patients with external in contrast to internal sites of pathology. Moreover, their original findings have been replicated by themselves (Cleveland & Fisher, 1960; Cleveland, Snyder & Williams, 1965) as well as by other workers (see the review by Fisher, 1963). Eigenbrode and Shipman (1960), however, found no difference between patients suffering from skin disease and those characterized by internal pathology and Barendregt, et al. (1961) failed to discriminate asthmatic, rheumatic, and neurotic patients by means of Barrier scores.

Going beyond diagnosis, Cassell (1964; 1966) sought direct perceptual correlates of body image scores. Predictably, it was shown that High Barrier subjects tend to

have low representation of body interior percepts in their Rorschach protocols. The threshold for tachistoscopic recognition of stimuli depicting external or internal body sectors was shown to vary with the Barrier score and its derivatives. Within the area of somatic reactivity, Davis (1960) obtained a number of significant correlations between enhanced responsiveness to stress at an external site of the body (e.g., muscle potential, skin resistance) and high Boundary, as well as low Penetration scores. At the same time, increased internal reactivity to stress (e.g., pulse rate, stroke) was associated with the opposite pattern of Cleveland and Fisher's Rorschach indices. Furthermore, pronounced differentiation in GSR reactivity in the left and right halves of the body was characteristically linked to low Penetration scores (Fisher, 1960). Consonant with these findings, the intensity of skin reaction to histamine phosphate proved to be associated with high Barrier indices (Cassell & Fisher, 1963). This relationship, however, held only in women and not in men.

In reference to real-life, rather than laboratory, conditions of stress, McConnell and Daston (1961) compared the above two Rorschach scores in women, during pregnancy and after childbirth. The Barrier index was not found to change in a systematic manner, but Penetration scores were reported to decrease significantly after childbirth. Orbach and Tallent (1965) tested patients five years after a specific surgical intervention, that of colostomy, and established that the Barrier scores of their subjects were lowered compared with those of Fisher and Cleveland's (1958a) controls.

The correlates of the two body image indicators are not restricted to the areas of psychosomatics and bodily experience. A considerable amount of work has by now been done with purely psychological variables. On the basis of the findings that have accumulated, it is possible to sketch tentatively a composite portrait of the person high in Barrier and low in Penetration scores. Such an individual tends to be resistant to suggestion (Fisher

& Cleveland, 1958a, Fisher, 1963), interpersonally active, and restless (Fisher, 1963). High Barrier subjects also show a trend toward recalling a greater number of Incomplete Tasks, as compared with individuals whose Barrier scores were low, (Fisher & Cleveland, 1956). Pronounced achievement motivation has been found to be characteristic of high Barrier scorers among boys, and superior academic performance has differentiated high from low Barrier subjects in groups of both sexes (Fisher, 1966). Furthermore, Barrier scores in male subjects, have been found to be positively correlated with verbal expression of sexual need and reports of sexual activity (Fisher & Cleveland, 1958b). Across sex lines, males have been shown to have lower Barrier and higher Penetration scores than females (Fisher, 1964). In reference to psychopathology, it has been reported (Fisher & Cleveland, 1958a) that schizophrenics' Rorschach protocols yield a lower number of Barrier responses than do those of normal subjects.

Finally, in the area of psychological change associated with chronological growth in children (Fisher & Cleveland, 1958a; Fisher, 1963) and aging in adults (Fisher, 1959) results in reference to the two Rorschach indices have been negative. However, positive changes in the direction of higher Barrier and lower Penetration have been reported as a function of successful psychotherapy (Cleveland, 1960). Similar findings have been obtained in relating Barrier scores to indications of remission, after experiences of acute schizophrenic disorganization (Cleveland, 1960).

Thus, the above approach appears to have been fruitful in helping bridge the gap between psychophysiological and psychological characteristics. Certain questions of detail do, of course, arise in connection with the conceptual and methodological aspects of Fisher and Cleveland's original work and its more recent extensions and elaborations. One might question, for example, including conversion hysterics with psychosomatic groups characterized by exterior symp-

tomatology. On the interpretive plane, the content differences that have been obtained may be explained in relation to the degree to which members of different diagnostic populations feel cut-off, isolated, or immobilized. Beyond these potential objections, however, Fisher and Cleveland's contribution provides a model for the intensive and systematic exploration of the psychological correlates of psychosomatic conditions.

Scales of Psychological Variables

Under this heading, we will survey elaborations of Rorschach content scoring that differ in two respects from the approaches covered so far. First, emphasis has shifted from concrete manifestations of behavior, e.g., alcoholism, homosexuality, suicide, to the inferred psychological state, e.g., aggression, dependence, object relations. Second, content is no longer scored as an accumulation of signs; rather, scales of psychological variables are constructed that take into account the intensity, as well as the frequency, of a Rorschach content manifestation.

These twin developments are best exemplified in the content centered study of motivational characteristics, notably aggression and anxiety. More modest beginnings toward a dimensional scaling approach are also apparent in reference to cognitive variables, on the axis from primary to secondary process, and to modes of interpersonal behavior, as exemplified by the construct of object relations.

Aggression

Scales. There is a considerable variety of approaches to the extraction of aggressive content from the Rorschach protocol. Three measures, in particular, have been recurrently and prominently utilized. These are the Rorschach Content Test hostility scores introduced by Elizur (1949) and the more recent schemes of scoring aggressive affect devised by DeVos (1952) and by Stormont and Finney (1953). Elizur, who was the first to deal systematically with assessment of hostility from Rorschach con-

tent, assigned an "H" score (weight of two) to such a response as "Two animals fighting with each other" and an "h" score (weight of one) to a milder expression of hostile "tensions," (e.g., "gossiping women"). An individual's total Rorschach Content Test (RCT) score was obtained by summing these weighted scores. Elizur's validation group consisted of fifty volunteer university students. Their RCT scores were compared with hostility indices derived from questionnaires, self ratings, and interview material, and significant intercorrelations (.45 to .74) between the criteria and the Rorschach measure of hostility were reported. When reliability was checked, Elizur found an average intercorrelation coefficient among eight scorers of .82 for hostility.

DeVos' (1952) scheme of scoring hostile content was developed as part of an inclusive effort toward categorizing all Rorschach responses according to their dominant modes of affect expression. DeVos' scoring system provides for a global hostility score, as well as for separate recording of oral aggressive, depreciatory, direct, indirect, and other varieties of hostile percepts. These refinements, however, do not appear to have been included in any actual research of DeVos' variables. The interjudge reliability of total hostility scores was reported by DeVos to range from .60 to .83, with the average intercorrelation coefficient among several scorers amounting to .77. DeVos' approach to the validation was different from that of Elizur; on the assumption that pathological groups are more hostile than normals, he concentrated on a comparison of normal samples with groups of neurotic and psychotic composition. The results of these analyses, which are more directly apposite to the correlates, rather than to the defining characteristics, of hostility, will be presented in one of the subsections below.

Another five-point rating system was devised by Stormont and Finney (1953). Upon further revisions and improvements (Finney, 1955) it came to be known as the "Palo Alto Destructive

Content Scale." The above instrument, in contrast to the two preceding ones, was validated against behavioral, rather than derived, criteria of aggressiveness. The groups compared by Finney for this purpose consisted of assaultive and non-assaultive psychiatric patients and significant differences in the five-point aggressive ratings were found between these two samples.⁵

Although independently derived, all of the above scales, together with other, less widely employed, indices of hostile Rorschach content, share a number of commonalities. In all cases, emphasis is placed on the projection of violent action or malevolent ideation into the Rorschach protocol. Among the several measures, DeVos' scale is perhaps the most inclusive, encompassing intentions, acts, and implements which are only inferentially related to aggression. Finney's scale, on the other hand, concentrates primarily on physical, and not psychological, violence, and is, of the three, the most restrictive.

Criteria. The originators of the three hostility scales, as well as other authors, shared the expectation that violent content on the Rorschach should be accompanied by hostility in behavior. Consequently, three distinct, if complementary, approaches have been prominent in the search for the empirical referents of aggressive Rorschach responses. Groups defined on the basis of extreme, and antisocial, behavior have been studied, e.g., those of prisoners convicted of assault, juvenile delinquents, or children with a presenting problem of destructive or aggressive behavior. In less extreme populations, ratings of professional observers, e.g., psychotherapists, hospital personnel, and teachers have been used.

⁵ In addition to these three schemes, Murstein (1956) developed a scoring system that provides for two-dimensional scoring. Intensity of hostility is evaluated on a seven-point scale; concurrently, the agent of aggressive action is assessed on the basis of its place on the phylogenetic scale. Thus "two paramecia fighting" is scored lower than "two bears involved in a bloody struggle" which response, in turn, gets a lower weight than "gangsters shooting each other."

Finally, attempts have been undertaken to induce aggression by means of a variety of situational manipulations, e.g., hypnotic suggestion, experimental frustration, ego-threat, or hostile behavior on the part of the experimenter. We will now review findings in the above three areas of research.

A rare degree of near-unanimity prevails among the investigators of "extreme" groups of individuals with a history of known aggressive acts or characteristics. With a variety of populations encompassing aggressively acting-out children or adolescents (Bäcker, 1953; Dierkens-Dopchie, & Dierkens, 1953), adults convicted of, and imprisoned for assault (Sjostedt, 1955), assaultive psychiatric patients (Stormont & Finney, 1953; Finney, 1955; Wolf, 1957), and delinquent adolescents (Gorlow, Zimet & Fine, 1952), elevations of Rorschach aggression scores were observed over the level of control groups. Moreover, these results were obtained with the help of all three major Rorschach aggression scales, those of DeVos (Sjostedt, 1955), Elizur (Gorlow, Zimet & Fine, 1952; Wolf, 1957) and Palo Alto (Finney, 1955; Stormont & Finney, 1953) as well as by means of measures devised by the experimenters themselves (Bäcker, 1953; Dierkens-Dopchie, & Dierkens, 1953). There is only one dissenting voice, that of Haskell (1961) who, working with a schizophrenic population, reported no relationship between overt aggression and Rorschach hostility.

In the group of studies in which observers' judgments served as non-test criteria of aggression, three research reports (Buss, Fischer & Simmons, 1962; Rader, 1957; Walker, 1951) relied upon the patients' therapists and two (Gluck, 1955; Sommer & Sommer, 1958) upon other psychiatric personnel for their ratings. In the two remaining projects, peer ratings of aggression were solicited in a non-psychiatric population (Wallace & Sechrest, 1963) and teachers served as raters of pupils' aggressiveness (Smith & Coleman, 1956). In the first group of studies, the authors are in agreement in reporting a linear and positive associ-

ation between therapists' ratings and Rorschach indices of aggression. In the second group, Sommer and Sommer (1958) established a relationship between a specifically devised measure of Rorschach hostility and ratings of behavioral, but not verbal, aggressiveness, and Gluck (1955) as well as Kagan (1960) failed to find any links between either covert or overt hostility, as inferred from ratings and other measures of aggressiveness, and hostile Rorschach content. Wallace and Sechrest (1963) failed to establish a relationship between peer judgments and hostile Rorschach content. Somewhat unexpectedly, however, self-ratings of hostility directly varied with the Rorschach measure. Further complications became evident upon the consideration of the results by Smith and Coleman (1956) who reported a curvilinear relationship between aggression as expressed on the Rorschach and as observed in the classroom. More specifically, in the above investigation, behaviorally or verbally aggressive adolescents characteristically obtained either high or low Rorschach hostility scores. Haskell's work, already mentioned in connection with the studies summarized in the proceeding paragraph, points to a differential association of Rorschach aggression indices and covert and overt expression of hostility. While, as reported, overt aggression in the above study varied independently of Rorschach indices, the presumably more subtle clinical ratings of underlying hostility were reflected in the Rorschach protocol. This finding is in keeping with the observation by Bolgar (1954) of an impressive degree of parallelism between hostile Rorschach content and themes of aggressiveness expressed in dreams. This relationship was, moreover, not limited to hostility, but appeared in an analogous form for a number of other affective states, including anxiety, dependence, and positive affect.

The results are more erratic and confusing with indices of aggression derived from a variety of non-projective (Buss, et al., 1962) and projective (Buss, et al., 1962; Gorlow, et al., 1952; Hafner & Kap-

lan, 1960; Haskell, 1961; Mogar, 1962; Murstein & Wheeler, 1959; Walker, 1951; Wallace & Sechrest, 1963) personality tests which have been used in attempts to establish links to the hostility scores on the Rorschach. In reference to thematic tests, which have been more intensively studied in relation to Rorschach hostility than any other variety of measures, findings are extant that point to a positive (Buss, et al., 1962; Walker, 1951) negative (Buss, et al., 1962; Murstein & Wheeler, 1959) or no (Gorlow, et al., 1952; Hafner & Kaplan, 1960; Haskell, 1961; Wallace & Sechrest, 1963) association with the various Rorschach hostility indicators. Positive correlations have been reported between Rorschach measures of aggressiveness and parallel ratings from figure drawings (Mogar, 1962), and an inconsistent pattern of findings has emerged upon the simultaneous use of paper-and-pencil measures of hostility and Rorschach scores which, in the study by Buss, et al. (1962) were significantly associated in women, but not in men. The general impression that emerges from this array of correlations is one of inconsistency. It may be rash to say that the Rorschach hostility scores stand in no relationship to indices of the same variables obtained from other tests; but the findings are too erratic and fragmentary to enable us to sketch in general terms the nature and the extent of this association.

In the area of situationally provoked aggression, investigators used a variety of approaches: hypnotic suggestion (Pattie, 1954), subliminal presentation of aggressively arousing stimuli (Silverman & Silverman, 1964; Silverman, 1965) and experimentally induced frustration (Lucas, 1961). Hypnotic induction was found effective in stimulating the production of aggressive test content. The effect of subliminal presentation of aggressive stimuli varied with the populations tested; the condition was effective in facilitating the emergence of aggressive Rorschach content in psychiatric patients, but not in normal subjects. Task-induced frustration, however, fell short of the experimenter's expectations and failed

to produce a significant increment in aggressive Rorschach responses.

A more intensive effort has been focused upon the exploration of interpersonal conditions that might influence the production of hostile test content. Proceeding from the examiner's own Rorschach hostility indices as measures of covert aggression and peer ratings as those of overt aggression, Sanders and Cleveland (1953) found that overt examiner hostility inhibited, and his covert hostility facilitated, the emergence of hostile content. However, varying the more general characteristic of examiner's status and power (Towbin, 1959) resulted in differences in the number of aggressive remarks during the test, but not in an actual increase of aggressive responses. Going beyond these general effects, several psychologists investigated the possible interaction between personality and situational influences on hostile Rorschach content. Murstein (1956) reported data that point to the cumulative effect of hostility and insight in increasing the number of hostile responses in a non-threatening situation. The same author, moreover, failed to find the opposite tendency under the condition of ego-threat, i.e., higher levels of Rorschach aggression were elicited among non-insightful and hostile subjects. Murstein's more recent work (1958) highlights the importance of the relationship between the subject and the examiner in facilitating or inhibiting hostile Rorschach responses. The general conclusion that can be derived from this research suggests the operation of several "screens" interposed between the hostility as it is expressed by the subject in his actual life and as it is by him in response to Rorschach inkblots. Clearly, both personality and situational influences act to modify the relationship between aggression expressed in real life and that projected through Rorschach percepts. Further support for this statement comes from the work by Kagan and Moss (1961) who stress the role of the stylistic factor of conflict tolerance as a mediating variable that facilitates the communication of hostility in the

Rorschach test. Abrams (1962) however, failed to find a relationship between tendencies toward repression or sensitization, as rated by the subjects' peers, and hostile Rorschach content. He concluded that need states are projected on the Rorschach regardless of the individual's defensive structure. As Abrams' experimental variables and operations differed from those of the preceding investigators, it is impossible to resolve this issue. The role of mediating characteristics, however, upon the emergence of hostile Rorschach content is a sufficiently important problem, both practically and conceptually, to stimulate further investigation.

Transcending this specific problem and looking at the accumulated evidence from a more general point of view, we find an impressive amount of support for the notion that artificially induced hostility is effective in bringing about increases in Rorschach aggression scores. It should not be concluded, however, that these indices are altogether determined by short-range factors. In particular, the findings by Kagan (1960) demonstrate an impressive degree of consistency over time in several component Rorschach indices of aggression observed in a group of males tested several times in the course of their late childhood and adolescence. Above all, "dynamic aggression," i.e., a combination of aggressive content with aggressive activity, was shown to be highly stable throughout the period of this study.

Norms. The search for the normative values on the several hostility scales has been clearly subordinate to the diagnostic and dynamic interests of the constructors and users of the above instruments. Elizur (1949) included the variables of age, sex, and intelligence in his original validating study and concluded that the scores on his hostility scale were not substantially influenced by any of the above characteristics. More recently, Johnson and Sikes (1965) investigated the effect of ethnicity on several variants of hostility scores. Although their sample was diagnostically uniform, i.e., consisted of hospitalized schizophrenic

tics, Anglo-saxon, Mexican, and Negro patients in Texas were found to differ significantly on several component indices of aggression: Anglo-saxons and Mexicans exceeded Negroes in "potential aggression," exemplified by such percepts as "great horns" or "snappy turtle." The pattern was reversed for the entity of "victim aggression," as illustrated by responses like "squashed insect." The most systematic attempt at exploring the effect of social variables on the DeVos' hostility scores comes from Japan where the above index was included in a major study of a stratified and representative sample of the Japanese population (Muramatsu, 1962). According to that report, male and female subjects within the above population differed in hostility, as derived from Rorschach content, as did groups contrasted in education and in socioeconomic status. A parallel pattern of sex differences, i.e., pointing to higher hostility scores in males, was also obtained in two samples of Japanese Americans (DeVos, 1954). It remains to be seen whether these distinctions are general, or peculiar to the settings in which they were obtained. Pending the resolution of this issue, the users of hostility scales should avoid the pitfall of attributing all of the intersubject variance to personality factors, at the exclusion of social and demographic characteristics.

Diagnostic and Personality Correlates. Somewhat paradoxically, much of the early research on aggressive Rorschach content focused on global diagnostic entities which are only inferentially related to aggressiveness instead of investigating more specific characteristics that might more plausibly be associated with hostility.

A series of studies using the Elizur (Elizur, 1949; Pasqui, 1952), the Palo Alto (Wirt, 1956) and the DeVos Scales (DeVos, 1952) sought to compare the aggressive scores of neurotic, normal, and, in some cases, schizophrenic samples. Wirt's findings were positive. On the other hand, both DeVos (1952) and Elizur (1949) were unable to differentiate normal from psychiatric samples by

means of their respective scales. Similarly, Pasqui (1952) found that the Elizur hostility score did not discriminate normal groups from those characterized by functional pathology. In the realm of organic illness, however, epileptic subjects scored higher, and extrapyramidal cases lower, than a number of neurotic, depressive, schizophrenic, or normal samples.

Other investigators went beyond these general diagnostic groups and studied the occurrence of aggressive Rorschach responses in more limited diagnostic entities. Thus, Moylan, Shaw and Appleman (1960) found that passive aggressive individuals presented a greater number of aggressive responses than paranoids and, on a borderline significance level, than those designated passive dependent. Fisher and Hinds' (1951) research which was concerned with the "hostility management process" in paranoid and suicidal schizophrenics has already been discussed in a different context. Working with a group defined on the basis of the presenting symptoms rather than diagnosis, Vernallis (1955) found that college students who were teeth grinders had significantly higher Elizur hostility scores than students free of this kind of symptomatic behavior. A recent study by Silverman (1963) demonstrated a significant relationship between independent Rorschach ratings of aggressiveness and of thought disturbance, in both psychiatric and non-psychotic samples. Silverman concluded that the interaction between the above two variables is continuous and mutual; aggressive imagery disrupts the proper operation of thought processes and such disruption facilitates the direct expression of aggressive ideation.

A scattered group of studies have investigated the occurrence of aggressive Rorschach responses in relation to a number of more general personality and behavior measures. Forsythe (1959) and Goodstein (1954) found Elizur aggression scores to be unrelated to the paper-and-pencil measures of anxiety of Taylor and Welsh. By contrast, hostility and anxiety appear to covary when their

dices are both derived from Rorschach content (Elizur, 1949; DeVos, 1952). Moreover, it may be concluded from the same studies that measures based upon a combination of anxiety and hostility responses are more effective in discriminating psychiatric and normal groups than are either of the above scales used alone. The latter finding suggests that both types of measures share variance associated with general characteristic of tension and maladaptation.

So far, all the correlates of hostility scores have been of the pathological variety. Kagan, Sontag, Baker, and Nelson (1958) stand alone in demonstrating a positive, or socially desirable, concomitant of aggressive Rorschach content. In a group of boys, but not in girls, they reported that the occurrence and frequency of such content was proportionate to the increase in IQ over a period of four years. This study suggests that Rorschach content that has been traditionally labelled aggressive, is not inexorably linked with destructiveness; rather it may be channelled into assertive and competitive strivings that are socially valued rather than disapproved.

Conclusion. As we cast another glance upon the yield of studies in the present area of aggression, several trends stand out. For one, hostile Rorschach content is associated with the extremes of hostile behavior, although the extent and nature of these relationships are not completely clear. By contrast, hostility, as gleaned from the Rorschach protocols, shares little variance with hostility as assessed by means of other, projective and objective personality tests. Moreover, communication of aggressive percepts on the Rorschach test does not reflect in a one-to-one manner any single behavioral or ideational index of aggressiveness outside the test setting. We have seen the facilitating and inhibitory effect of a number of situational factors. More importantly, characteristics as diverse as the adequacy of the individual's adaptive organization, looseness of his control over impulse, and conscious acceptance of his aggression are all contributory factors to the aggression in-

dices scored on the basis of Rorschach content. As yet, we know of no study in which all these variables, whether they be specific to the test situation, or related to general impulse control, or to the management of aggressive behavior, have been incorporated. Yet the nature of findings obtained so far largely by a piecemeal approach is sufficiently encouraging in order to call for a multi-dimensional strategy which would build upon the foundation of the results here reviewed.

Anxiety

The study of content manifestations of anxiety was initiated by Elizur (1949) and DeVos (1952) who constructed anxiety measures analogous in format and structure to their respective hostility indices. The responses that were included in both of these scales connoted "fear, unpleasantness, sorrow, pity, and the like." (Elizur, 1949, p. 259). Again, DeVos' (1952) measure was the more inclusive of the two as it encompassed such responses as clouds, maps, faces, and profiles that are only indirectly associated with anxiety.

Much of the subsequent research on anxiety proceeded in a manner parallel to the investigatory work on hostility. For this reason, and because of the availability of a recent review by Neuringer (1962) on all Rorschach anxiety indices,⁶ we will restrict ourselves to the presentation of brief and general conclusions that have emerged from close to two decades of research.

In the light of this evidence, anxiety scales show some promise of differentiating normal and psychiatric populations (DeVos, 1952; Elizur, 1949; Pasqui, 1952) are sensitive to the imposition of situational stress (Kates & Schwartz, 1958), but are erratically and inconsistently related to paper-and-pencil measures and peer ratings of anxiety (Elizur, 1949; Forsythe, 1959; Ginsberg, Azzi & Pires, 1964; Goodstein, 1954). It may also be

⁶ Within the last few months, another review, specifically devoted to anxiety, as scored on Elizur's Rorschach Content Scale, has appeared (Goldfried, 1966a).

worth noting that in the normative Japanese investigation by Muramatsu (1952) few differences in DeVos' anxiety scores were obtained along socioeconomic, educational, age, or sex lines, quite in contrast to the parallel hostility scale which, it may be recalled, yielded a number of significant differences linked to some of these variables. Finally, there are tentative indications (DeVos, 1954; DeVos & Miner, 1959) that anxiety indices are elevated in partially acculturated groups, as exemplified by Americans of Japanese parentage in Chicago, or migrants from the traditional oasis setting to the European-type urban environment in Algeria.

Dependence

Much less empirical work has been done with the construct of dependence. There is only one content measure, that of DeVos (1952) to be presented and only a few scattered new studies to be introduced (Arnaud, 1959; Levitt, Lubin & Zuckerman, 1962; Pruitt & Van de Castle, 1962; Zuckerman, Levitt & Lubin, 1961). The conclusion from this work appears to be that childish, submissive, oral, and authoritarian themes which DeVos used in constructing his scale share little variance with self or peer-made judgments of dependency (Zuckerman, et al., 1961) or with chronic reliance on public welfare (Pruitt & Van de Castle, 1962). A positive finding that Levitt, et al. (1962) were able to obtain concerns the higher dependence scores of subjects who volunteered for an experiment in hypnosis. Dependence scores were also elevated in children of parents who were afflicted with multiple sclerosis (Arnaud, 1959). It may also be recalled that DeVos' dependence scores proved their value in the area of psychosomatic differentiation, a topic which we have already reviewed (see p. 19). However, in the field of psychopathology proper, DeVos' (1952) own validating work holds little promise for the diagnostic use of the Dependence scale as most of his intergroup differences were negligible. But, on the positive side, one should recall Bolgar's re-

port (see p. 23) of a considerable degree of parallelism between the prevalence of dependent themes on the Rorschach and in dreams.

Other Affective or Motivational States

Little remains to be said about the content-oriented exploration of other affective or motivational variables. DeVos (1952) presented a list of criteria for the scoring of "bodily concern," "unpleasant affect," and "pleasant affect" within the context of his general scoring scheme, but little subsequent work appears to have been done with any of these variables.

One can also refer to a recent study (Levin, 1966) in which a measure of achievement motivation, based on Rorschach content, was employed. The concern of this investigation was with the Rorschach manifestations, in style, structure, or theme, of female castration complex. Without going beyond the scope of this review, it may be worth mentioning that unmarried career women were found to exceed married homemakers without gainful employment in the proportion of percepts expressive of a drive for prestige and achievement. Two other content measures used in that study, i.e., difficulty in assigning sex to H responses, and phallic symbolism, failed to differentiate the two groups. Another approach to the construct of castration anxiety has been pursued by Cansever (1965) in Turkey who, upon testing young boys before and after circumcision, noted a decrease of phallic themes concomitant with a greater frequency of references to broken, damaged, or disfigured objects.

Worthy of a brief mention is the early content classification by Schachtel (1941) who set apart "detached form perception" as it occurs on the Rorschach from several varieties of "dynamic form perception." The latter had to do with the manifestation of themes of size, enclosure, fragility, and injury and torture. Virtually no systematic investigation of these variables has been undertaken. Schachtel's scheme, however, stands as a precursor to the more intensive utiliza-

tion of content themes and anticipates the extension of this approach to broader variables, such as primary process and object relations, which are to be reviewed in the next two sections.

Primary Process

Holt (1956; Holt & Havel, 1960) undertook to construct an inclusive Rorschach scoring system which would permit the assessment of the direct or indirect nature of impulse representation in producing and communicating Rorschach responses. To this end, every Rorschach percept was rated for the presence and intensity of drive related material on a three step scale, from absence of such material to its communication in a raw, unmitigated form. The intermediate level was provided to accommodate responses which were related to drive expression in an indirect or camouflaged way. A more elaborate variant of this system provides for a seven-point scoring of the defense demand, or "shock value" of a response (Holt, 1966). Holt's scoring scheme combines formal and content variables, yet permits separate assessment of primary process expression in Rorschach content. Moreover, it is possible to assess the number and intensity of primary process percepts expressive of specific impulses, i.e., aggression, and sexuality, and in relation to several stages of psychosexual development, i.e., oral, anal, and Oedipal. In the present survey, we will restrict ourselves to a brief presentation of results that are pertinent to primary process expression through general or specific indices derived from content.

The total number of such studies is, so far, small, yet the investigations extant cover a wide field of endeavor. Primary process expression has been studied in reference to the effects of hallucinogens (Phillip, 1960), sensory deprivation (Goldberger, 1961), tranquilizers (Saretsky, 1966), and hypnosis (West, Baugh & Baugh, 1963), as well as in relation to schizophrenia, in its several forms, (Silverman, Lapkin & Rosenbaum, 1962, Zimet & Fine, 1965), and creativity

(von Holt, Sengstake, Sanada & Draper, 1960). Most of these studies represent exploratory and unrelicated ventures into diverse research areas. We will therefore only present the general trend of the results obtained. Viewed in this general perspective, the data accumulated appear to suggest increases of primary process material, under a variety of circumstances that might be conducive to ego loosening, such as sensory deprivation, (Goldberger, 1961) or administration of LSD (Phillip, 1960), as well as subliminal introduction of aggressive material (Silverman, 1965). Tranquilizers, on the other hand, did not reduce the number of direct primary process manifestations, but had the effect of enhancing the patients' ability to justify and integrate their primary process percepts (Saretsky, 1966). There is also evidence that the presence of primary process material, particularly in the areas of aggression and orality, is associated with effectiveness and creativity in solving complex cognitive problems (von Holt, et al., 1960). However, the results of two other studies (Pine, 1962; Pine & Holt, 1960) point to the complexity of the relationship between primary process and creativity. The nature and the extent of this association appear to depend on the population studied, the primary process measure used, and the criterion of creativity chosen. A surprising occupational difference was noted by the Brazilian psychologist, Ribeiro da Silva (1962); actors were found to exceed stage directors in the production of primary process material. Pine (1962) in this country reported a similar contrast between actors and college students. In reference to schizophrenia which, on theoretical grounds, might be expected to be characterized by immediate drive representation, the available results are negative (Silverman, et al., 1962). When, however, the primary process expression of specific impulses, and their developmental stages were studied in relation to varieties of schizophrenia, more encouraging findings were obtained. Thus, Zimet and Fine (1965) recently differentiated pro-

cess and reactive schizophrenics on the basis of the occurrence of primary process material associated with different stages of psychosexual development. Process patients exceeded reactive ones in the number of primary process representations of oral and anal material, while the opposite trend obtained in reference to phallic and genital sexuality, aggression, and anxiety. It is interesting to note that, with the exception of anxiety, secondary process representations of the above drive-related areas failed to differentiate these two groups of patients. With a similar orientation, though a different population, West, Baugh and Baugh (1963) established that, in normal subjects, hypnosis brought about an increase in the frequency of oral passive themes, and a decrease in the number of Oedipal themes in Rorschach content. In a recent paper, Holt (1966) painstakingly delineated the patterns of clinical ratings, personality questionnaire scores, and cognitive style measures that constituted the correlates of primary process manifestation in Rorschach test content of a variety of normal and psychiatric populations. The results of this work cannot be adequately summarized here. Suffice it to say that the profile of traits associated with the direct expression of orality in test content conformed rather closely to the psychoanalytic description of "satisfied oral character." The constellations of characteristics that emerged in relation to sexual, aggressive, anal, or other variants of content, given in a raw or in a modulated form, were somewhat less clearcut.

Outside of Holt's scoring scheme, but overlapping with it in both rationale and content, there are a number of independent projects. Pêna (1959) introduced a Rorschach content scale of social desirability which would appear to correspond in part to the primary process measure, with a negative sign. Acker (1963) contributed the finding that "primitive acceptance of impulses," exemplified by such Rorschach responses as "raw flesh" and "volcanic eruption," are related to a pattern of "high

sympathetic dominance" based on heart rate, diastolic blood pressure, salivary output, palmar skin resistance, and other physiological indices. Content overlapping with Holt's primary process measure was also included in an index of "unhealthy" responses that was introduced and tested in two recent studies (Rychlak & O'Leary, 1965; Murray & Rychlak, 1966). Somewhat parallel to the findings of Silverman, et al., unhealthy content was not found to be associated with schizophrenia in adults or paper-and-pencil indices of maladjustment in adolescents. Rather, there was tentative evidence in favor of the opposite trend; schizophrenics exceeded normal control subjects in the category of neutral responses and high school students obtaining high unhealthy content scores appeared, in the light of questionnaire results, to be characterized by dominance and individuality. But discrepant results were reported with a related, though not identical criterion of "deviant content," which, as defined by Powers and Hamlin (1958), subsumed mangled, socially inappropriate and gory responses. These response variants were found to occur with increased frequency in schizophrenics, as compared with either neurotics or normals. Apparently, there is enough of a difference among the operational definitions of "unhealthy," "deviant" and "primary process" content to produce these bafflingly divergent findings.

Object Relations

In a bold and imaginative proposal, the Israeli psychologist, Orr (1958), suggested that Rorschach responses be viewed on a continuum from the representation of the complete and moving human figure to that of inanimate and lifeless objects. Rorschach content representing parts of the human body, whole or partial representations of animals, and, finally, plants were regarded as progressively descending steps of a hierarchy which reached its lowest rung with that of natural or man made, inanimate objects. An additional feature of

Orr's scoring scheme was the differentiation of animals into warm blooded and cold blooded varieties, the former being assigned a higher weight because of their greater physiological and psychological proximity to human beings. The above distinctions were incorporated into a "life coefficient," which was obtained by assigning differential weights to the several categories of responses enumerated, while a "life percentage" of responses was derived by tallying all the relevant responses, from Pl to H, without reference to their relative weights. All of the above indices were limited by Orr to the occurrence of relevant responses on Cards I, VII, X, because of their assumed stimulus value which need not concern us here.

Orr's monograph contains a wealth of case material, but only rudimentary quantified data. According to this information, both proportion and number of responses indicating living beings was low in groups of institutionalized French psychiatric patients. The only independent and systematic application of Orr's suggestions that has come to our attention has been undertaken by the Ecuadorean psychiatrist, Endara (1959) who produced suggestive evidence pointing to a lowering in the several component and global Orr indices in groups of convicted rapists, first-offense, and recidivist murderers, when these populations were compared with individuals drawn from the normal population.

More recently, however, Pruitt and Silka (1964) in this country independently introduced an "empathy-object relations scale" which shows a great deal of overlap with the scoring scheme originated by Orr and applied by Endara. Pruitt and Silka, however, provided a more elaborate weighting system and injected sex specification as an additional determinant of point-weights. By way of preliminary findings, object relation scores were found to be related to post-therapy adjustment and adequacy of work performance in a group of vocationally handicapped and emotionally disturbed individuals.

Scales of Diagnostic Categories

Many of the research areas reviewed by us have been germane to the problem of diagnostic differentiation. However, the only attempt to construct content scales specifically fitted to the various nosological entities was undertaken by Bower, Testin and Roberts (1960) who, moreover, reported a promising degree of differentiating power associated with their measures of paranoid schizophrenia, catatonic schizophrenia, depression, mania, personality trait disturbance, and obsessive-compulsive neurosis. The scoring of these measures is quite complex and is not easily described in the limited space available. At the risk of oversimplification, the paranoid schizophrenia scale is based upon the perception of depreciated objects, that of catatonic on idealized objects and on resort to categorical evaluation along the axes of goodness-evil and power-weakness. Conventionality and submissiveness are the themes emphasized on the depression scale, while percepts associated with mania are characterized by the expression of strong counter-dependent needs. The common feature of responses served on the personality trait disturbance scale concerns manipulation of objects, while obsessive scale is loaded on themes of precision, specificity, artificiality, and schematism. Despite an apparent degree of arbitrariness with which these general concerns were translated into operational measures of Rorschach responses, high inter-scoring reliability of these instruments was reported. But the very complexity of these instruments may serve as an obstacle in further research and clinical applications of these measures. At any rate, despite the promising results by Bower, et al., no further crossvalidating research with these content scales has come to our attention.

Conclusions

At the end of Part One of this review, the conclusion was reached that none of the traditional content classifications correspond to a diagnostic category, a de-

fense mechanism, or a dynamic constellation. How much closer are we to a direct reflection of meaningful psychological variables in Rorschach content upon the consideration of the variety of innovations that were included in Part Two of this review?

In order to answer this question, we must first articulate the four strategies of research that are open to, and have been used by, investigators who have gone beyond conventional content classifications. Broadly speaking, they have had the choice of four approaches: to proceed from one of the traditional content rubrics to its several sub-divisions, to start out with a specific response, to concentrate upon a series of pathognomic percepts, or to leave behind the details of classification in favor of more global, affectively or motivationally expressive, themes. In the general Rorschach literature, these four orientations are exemplified in the writings of Kuhn (1963), Lindner (1946), Phillips and Smith (1953), and Schafer (1954), respectively.

The research output reviewed by us in the body of the present paper is rather unevenly divided among the above four orientations. Systematic investigation of content subcategories has only recently been launched but is now being pursued with persistence and vigor, notably by Swiss investigators. In reference to the behavioral referents or subjective meanings of discrete responses, we have only exemplars in the research literature that provide the models and indicate the potential of this avenue of research. We are not in position to state the extent, or limit, of its value. Most of the accumulated research evidence pertains to the remaining two lines of investigations: those concerned with constellations of signs and with thematic analysis. In these fields of endeavor, certain topics have been investigated with sufficient intensity to permit us to try to answer the question which we posed at the opening of this section.

Generally speaking, as we look at such thoroughly investigated research problems as those of aggression, or homo-

sexuality, the salient impression is one of an overlap between content measures and their behavioral referents that cannot be attributed to chance. But this overlap is far from approaching correspondence. The clinically or theoretically oriented contributor or user of these data cannot stop with the establishment of this imperfect relationship. Rather, research emphasis should shift, as it already has in part, toward the search for mediating variables that facilitate or inhibit the nature and the extent of covariation between real-life behavior and Rorschach indices. Situational and contextual characteristics, all too often overlooked even in the better studies reviewed, will no doubt emerge as one of the constraints that affect the links between behavior and content. Even more important, the authors of the more recent and sophisticated research contributions have increasingly had the occasion to refer to perceptual defense and perceptual style as pertinent variables that operate to magnify or to reduce the reflection of behavior in Rorschach content.

On theoretical grounds, it is naive to suppose that motivational states operate independently of the structural aspects of personality. The incorporation of these structural components in a generally valid statement of principles which govern the actualization of real-life concerns in Rorschach content remains the great unaccomplished task facing theorists and investigators.

We will attempt to take the first few steps toward tackling this major issue in the third and terminal part of the present review. To this end, we will try to break down the artificial barrier that has stood between the empirical Rorschach research and the growing body of theoretically inspired work on the relationship between perception and personality.

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A Multitrait Multimethod Measurement Approach to the Traits (or States) of Anxiety, Depression and Hostility¹

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Summary: This study tested the convergent and discriminant validities of various psychological techniques used for the measurement of the affects of anxiety, depression and hostility. The subjects were 29 psychiatric patients and 25 normal controls, all males. Subjects were interviewed and rated for the three affects and given an extensive battery of tests. Anxiety and depression measures from ratings, checklists, and questionnaires demonstrated good convergent validity but poor discriminant validity. The projective methods did not demonstrate much convergent validity. Hostility was separable from anxiety and depression but the tests showed poor convergent validity for hostility. In the normals, fantasy hostility (TAT) and admitted hostility (Multiple Affect Adjective Check List) showed some convergence, but in the patients there was no congruence between these two levels.

Because affects are so vaguely defined, and there are so many tests purporting to measure them, the use of any single method to assess them is incautious. Methodological studies are needed to decide which instruments are most valid for the assessment of affects, particularly when important hypotheses rest on the adequacy of the affect criteria. Investigators in the field of psychosomatics sometimes take a precise physiological or biochemical measure and correlate it with a gross, psychological variable of questionable validity.

Campbell and Fiske (1959) have furnished a model for testing the validity of methods purporting to measure the same variables. They distinguish between "convergent validation," which involves proving that two measures of the same construct (e.g. "anxiety") are significantly related, and "discriminant validation," or proving that two measures of different constructs (e.g. "anxiety" and "hostility") are unrelated, or minimally related relative to the convergent validity coefficients.

This model has been applied to various personality trait constructs, such as dependency (Zuckerman, Levitt & Lubin, 1961). The present study represents an extension to the realm of affects. The

affects measured were anxiety, depression and hostility. There is good theoretical reason to expect anxiety and depression to be positively correlated. Overt hostility might be expected to be related negatively to depression if one accepts the idea that depression represents hostility turned inward. However, in many psychological tests and in ratings the methodological variance tends to inflate correlations between discrete variables. "Halo effect" in ratings and "response set" in tests are examples of this methodological "noise" in the measurement system. The Campbell and Fiske model represents a way of assessing this kind of influence in that one can compare the cross-method correlations of a trait with the monomethod correlations of different traits.

Method

Subjects

The volunteer subjects used in this study consisted of 29 male psychiatric patients and 25 male normal controls involved in a broader study of hormone-affect relationships. The detailed characteristics of the sample are described in the paper by Persky, Zuckerman, and Curtis (in Press). The patients consisted primarily of acute anxious and depressed

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neurotics in the open-ward psychiatric unit of a general hospital. Although a number of patients demonstrated an agitated depression, no retarded depressions were seen. About five of the patients demonstrated high overt hostility but the range of this affect was not as great as for the other affects.

Procedure

All subjects, patients and normals, went through the same assessment procedure. The procedure began with an open-ended interview followed by independent ratings of the subject by the interviewer and observer. After the interview the subject was given a battery of psychological tests. A physical examination and the taking of a blood sample followed the tests.

In the afternoon some of the subjects were given further psychological tests and one physiological test, the cold pressor, using heart and breathing rates, and GSR as measures of response. A four day urine collection was accompanied by a daily administration of the Multiple Affect Adjective Check List (described below). The physiological data will be discussed in other papers.

Psychological Measures

1. Ratings

A series of ratings scales was constructed for each of the three affects. These were 10 point scales with word descriptions used to define different points on the scales. Seven anxiety scales for specific aspects of relevant behavior included the ratings of: voice and speech, muscle tension, autonomic signs, subjective reports, somatic preoccupations, restlessness and cognitive impairment. An average specific sign score was computed for the seven scales. In addition to the specific anxiety score a global anxiety rating was made on the basis of the overall impression.

Four scales were constructed for depression: mood, guilt, self-esteem and retardation. The mean score on the four scales was used as the measure of depression.

Three scales were constructed for hostility: verbal hostility, hostile attitude (re-

sentment), and physical hostility. The mean score on the three scales was used as the measure of hostility.

The raters made two ratings, one for overt or observed behavior (including non-observed but admitted behavior) and one for inferred affect (covert or potential behavior). The latter rating was based on clinical judgment. The overt and covert ratings were made on all scales except the specific anxiety scales which just dealt with overt behavior. The reliabilities of the ratings will be given in the results section.

2. Questionnaires

The Taylor (1953) Manifest Anxiety Scale, the Depression Scale from the MMPI (Hathaway & McKinley, 1951), the Buss-Durkee (1957) Hostility and Guilt Scales, and the MMPI Lie Scale were combined in an Affect Questionnaire which contained all of the scorable items. The Cattell (1957) IPAT Anxiety Scale was also used. The MMPI Lie Scale was used to rule out questionnaire records where distortions may have been a major influence. Scores of 9 or higher on the Lie scale were used to invalidate questionnaire scores. The questionnaires and checklists of 2 patients and two controls were not included in correlations because of the high Lie scores.

3. Multiple Affect Adjective Check List (MAACL)

The Zuckerman-Lubin (1965) MAACL consists of 132 adjectives relating to feelings or moods. The subject checks those words which describe his feeling for a specified period of time. The MAACL has three empirically derived scales for the measurement of anxiety, depression and hostility. Considerable data has been amassed on the reliability and validity of these scales in experimental and clinical situations. Two forms of this test were given on the day of ratings evaluation: the "Today" form which requests the subjects to describe his feelings on that day only, and the "General" form which requests the subjects to describe how he generally feels. The "Today" form was given each day for the next four days, and five day

mean scores were computed for each of the scales.

4. Indirect (Projective) Tests

Twenty Holtzman ink-blots (HIT) were selected on the basis of their relatively high card-pull for hostility and anxiety content scores. These content scores, described in Holtzman's (1961) manual and book are mainly based on DeVos' (1952) and Elizur's (1949) systems of scoring Rorschach content. No content score for depression was available so a number of standard Rorschach variables which have been used as depression indicators (Beck, 1949; Piotrowski, 1957; Rorschach, 1942) were scored. These included: number of rejections, reaction time, shading, and color. The first three are expected to be high in depression, while color response is expected to be low.

Ten T.A.T. cards were selected on the basis of high emotional tone [derived from Eron's (1950) norms]. The TAT protocols were rated card by card, for anxiety, depression and hostility. Two independent raters were trained by the senior author and a manual was constructed for rating degrees of affect. The reactions of the person in the story judged to be the hero formed the basis for the ratings. The reliability coefficients over all subjects were calculated using total scores for each subject and are given in Table 2.

RESULTS

The reliabilities of the interview ratings for the patients, normals, and combined group are given in Table 1, in parentheses, and Table 4 in the first row.

All of the reliabilities were significant for the patient group. As we might expect in the ratings of anxiety, the anxiety rating which was tied to specific behavioral manifestations was most reliable and the inferred global anxiety ratings were the least reliable. But this was not the case for hostility and depression where the inferred rating reliabilities were actually somewhat higher than the ratings of hostility and

depression. Part of the reason for this may be that depression and hostility were less easily observable within the interview situation.

Only two of the seven ratings were significant in the controls. The reason for this was the very restricted range in the normals, generally covering only three scale points. Differences in rating of one point were much more crucial for controls than for patients. The results indicate that our scales are too crude to make reliable differentiations within the restricted range of affect seen in normals not under severe stress.

The rating reliabilities for the combined group of patients and controls were all significant, and, with the exception of the global anxiety ratings, all within the range of acceptable scoring reliability.

Construct Validity:

Multitrait-Multimethod Matrices

All scores were intercorrelated for the control, patient, and combined groups. For the purpose of constructing matrices according to the Campbell-Fiske model, one score for each affect on each type of measure was selected for inclusion in matrices. The specific anxiety rating score was chosen rather than the global scores because of its higher reliability. Only the overt depression and hostility rating scores were used in these matrices. The Taylor MAS scale was chosen to represent anxiety in the questionnaire technique but the results with Cattell's scales will be considered later in this paper. The 5 day mean MAACL scores were chosen because they provided a more extensive time sampling of the subjects' states than a single day's. Today or the General form of the MAACL. The color score of the Holtzman Ink-blot Technique was selected to measure depression (inversely) because it was the only ink-blot variable to show a relationship with depression in the combined group.

The multitrait multimethod matrices for the control and patient groups, are combined in Table 1. The first coefficient in each box is for the patients and the

Table 1—Correlation^a Matrices of Rating and Test Scores for Patients (p) and Controls (c)

		Ratings			MAACL-5 Day \bar{X}			Questionnaires			TAT			HIT	
		A	D	H	A	D	H	A	D	H	A	D	H	A	D
Ratings	A p	(87)													
	c	(21)													
	D p	.67 ⁺	(69)												
MAACL 5 Day \bar{X}	c	.48 ⁺	(80)												
	H p	-.27	-.40 ⁺	(78)											
	c	.44 ⁺	.20	(40)											
Questionnaires	A p	.70 ⁺	.40 ⁺	-.27											
	c	.17	.06	.23											
	D p	.74 ⁺	.51 ⁺	-.32	.95 ⁺										
TAT	c	.05	.12	.13	.92 ⁺										
	H p	.61 ⁺	.31	-.19	.86 ⁺	.88 ⁺									
	c	.17	.13	.25	.88 ⁺	.75 ⁺									
HIT	A p	.47 ⁺	.34	-.18	.52 ⁺	.50 ⁺	.38 ⁺								
	c	.21	.49 ⁺	.15	.42 ⁺	.57 ⁺	.32								
	D p	.63 ⁺	.47 ⁺	-.63 ⁺	.72 ⁺	.79 ⁺	.60 ⁺	.66 ⁺							
Col	c	.21	.19	.22	.26	.42 ⁺	-.04	.65 ⁺							
	H p	.15	.04	.38 ⁺	.16	.09	.03	.45 ⁺	-.03						
	c	.11	.34	.27	.61 ⁺	.63 ⁺	.67 ⁺	.45 ⁺	.18						
HIT	A p	.10	.32	.02	.18	.20	.05	.39	.29	.41 ⁺					
	c	.37	.33	.47 ⁺	.28	.28	.19	.23	.18	.24	.30				
	D p	.04	.25	-.03	.25	.29	.19	.32	.31	.04	.60 ⁺				
HIT	c	.38	.08	.37	.33	.20	.44 ⁺	.29	.27	.21	.33	.44 ⁺			
	H p	.01	.10	.06	-.12	-.13	-.19	-.14	-.05	-.17	.42 ⁺	.44 ⁺			
	c	.42 ⁺	.44 ⁺	.30	.35	.24	.48 ⁺	.20	-.08	.27	.33	.50 ⁺			
Col	A p	.01	-.29	-.05	.08	.09	.01	-.17	.02	-.07	.02	.45 ⁺	.29		
	c	.27	.15	.28	-.01	-.09	.14	.02	-.13	.20	-.08	.18	.28	.31	
	D p	.17	-.20	.00	-.05	-.19	.09	-.28	-.43 ⁺	.19	.12	.07	.22	.33	
HIT	c	.12	-.25	.31	.18	.12	.22	-.23	-.26	.11	.24	-.01	.03	.33	
	H p	.20	.31	-.19	-.17	-.04	-.20	.02	.13	.06	.36	.43 ⁺	.18	.37 ⁺	-.03
	c	.23	-.02	.21	.21	.02	.34	.06	-.26	.25	.11	.32	.36	.53 ⁺	.22

^a decimal points omitted

* p<.05; +p<.01

second is for the controls. The combined groups' matrix is in Table 2. The boxed-in (Table 1) and underlined (Table 2) coefficients represent the monotrait-heteromethod validity coefficients.

We may summarize the results contained in these Tables as follows:

In the patient and combined groups, anxiety and depression traits as measured by ratings, MAACL, and questionnaire measures, were highly correlated across methods. In the combined group, the TAT depression score had lower but significant correlations with

Table 2—Correlation^a Matrix of Rating and Test Scores for Combined Groups (Patients and Controls)

		Ratings			MAACL-5 Day M			Questionnaires			TAT			HIT	
		A	D	H	A	D	H	A	D	H	A	D	H	A	D
Ratings	A	(77)													
	D	.72 ⁺	(77)												
	H	-.03	-.15	(72)											
MAACL 5 Day \bar{X}	A	.64 ⁺	.44 ⁺	-.06											
	D	.62 ⁺	.49 ⁺	-.13	.94 ⁺										
	H	.45 ⁺	.25	-.05	.81 ⁺	.81 ⁺									
Questionnaires	A	.55 ⁺	.57 ⁺	.14	.59 ⁺	.56 ⁺	.27								
	D	.66 ⁺	.59 ⁺	-.15	.68 ⁺	.69 ⁺	.34 ⁺	.84 ⁺							
	H	.26	.23	.40 ⁺	.38 ⁺	.33 ⁺	.25	.52 ⁺	.24						
TAT	A	.06	.17	.09	.14	.17	.10	.09	.08	.28	(61)				
	D	.15	.23	.09	.30 ⁺	.29 ⁺	.27	.34 ⁺	.34 ⁺	.14	.45 ⁺	(81)			
	H	-.02	.02	.06	-.06	-.06	.09	-.21	-.23	-.05	.41 ⁺	.32 ⁺	(77)		
HIT	A	-.01	.04	-.09	-.05	-.05	.05	-.23	-.17	-.09	.01	.32 ⁺	.32 ⁺		
	D	-.24	.22	-.06	.13	.04	-.35 ⁺	-.42 ⁺	.06	.22	.01	.19	.35 ⁺		
	H	.00	-.02	-.10	-.08	-.03	-.01	-.01	.10	.26	.39 ⁺	.24	.43 ⁺	.07	

^a decimal points omitted

* p<.05, +p<.01

anxiety and depression measures on the MAACL and the questionnaire. The only variable on the HIT correlating with these anxiety and depression scores was the Color Response score which had low but significant negative correlations with depression ratings and the depression questionnaire in the combined group, and with the depression questionnaire in the patient group. In the control group, the ratings of anxiety and depression did not correlate with test measures of these affects. This is understandable in the case of the unreliable anxiety ratings, but not explained by the adequate reliability of the overt depression ratings. Three of the four MAACL and questionnaire measures of anxiety and depression were significantly correlated in the controls. Although anxiety and depression measures in the patient and combined groups demonstrated good convergent validity, the discriminant validity was poor. In most cases the heterotrait-heteromethod correlations (e.g. questionnaire depression vs rating anxiety, or vice versa), were as high or higher than the monotrait-heteromethod validity correlations (e.g. questionnaire depression with rating depression). In many cases, particularly with the

MAACL, the heterotrait-monomethod correlations (e.g. MAACL anxiety vs. MAACL depression) were higher than the validity coefficients.

Only one hostility validity coefficient was significant in the patient or combined groups. Ratings of hostility were significantly correlated with the questionnaire measure of hostility. The depression questionnaire correlated highly with rated hostility in a negative direction. In the control group, there were two significant validity coefficients for hostility. The MAACL hostility score correlated significantly with the questionnaire and TAT hostility scores.

Table 3 summarizes the number of significant monotrait-heteromethod validity correlations in each of the groups, by methods and by traits. For each method there were 12 validity coefficients in each group. For each trait there were 10 validity coefficients. In a total matrix for one group there were 30 validity coefficients. The greatest number of significant validity coefficients were in the combined group, probably because of the higher N and the greater heterogeneity. The higher number of significant coefficients in the patient group than in the control group is attributable to the

Table 3—Number of significant monotrait-heteromethod (M-H) correlations

Methods*	Patients	Controls	Combined Group
Ratings	5	0	6
MAACL	4	4	5
Questionnaire	6	3	7
TAT	0	1	2
HIT	1	0	2
Traits*			
Anxiety	3	1	3
Depression	4	1	7
Hostility	1	2	1
Total No.			
Sig. M-H r's	8	4	11

*possible number of significant M-H validity coefficients: Each method = 12, Each trait = 10, Total = 30.

Table 4—Correlations^a between Global Ratings, Observed (O) and Inferred (I)

	Anxiety-O				Anxiety-I				Depression-O				Depression-I				Hostility-O				Hostility-I				No. Sig. r's (out of 18)	No. Sig. monotrait r's (out of 6)
	Ps.	Cont.	Both		Ps.	Cont.	Both		Ps.	Cont.	Both		Ps.	Cont.	Both		Ps.	Cont.	Both							
Reliability																										
Q ₁ Anx	66+	26	62+	59-	14	54+	69+	80+	77+	45+	77+	77+	78+	39	72+	78+	67+	77+								
Q ₂ Dep	63+	22	53+	68+	28	72+	34	49+	57+	32	67+	-18	15	14	-19	14	14	14	8							
Q ₃ Host	15	61	61+	68+	05	71+	47+	19	59+	49+	11	66+	-63+	22	-15	-38+	13	-10	11							
Q ₄ Guilt	15	25	25	25	36	40+	04	34	23	10	10	27	38	27	40+	29	38	38	5							
IPAT Total Anx	28	-28	22	34	-16	34+	37	54+	51+	46+	35	54+	-08	-37	-04	-09	-38	-10	3							
Covert Anx	47+	47+	55+	72+	44+	72+	30	48+	48+	49+	59+	-27	29	03	-21	03	-38	-10	4							
Over Anx	38	39	44+	57+	41+	57+	25	51+	40+	36	46+	48+	-08	27	10	-02	34	12	4							
MAACL Day 1 A	64+	52+	58+	76+	41	41	31	41+	50+	40+	62+	-38	29	10	-02	34	19	19	11							
D	60+	07	59+	67+	30	66+	31	48+	48+	01	51+	-30	28	07	-35	23	33	05	8							
H	60+	-02	55+	57+	24	60+	65+	05	48+	48+	01	51+	-30	28	07	-35	23	08	5							
MAACL 5 Day X A	42+	22	39+	32	34	37	42+	06	36+	-06	03	59+	-34	19	-11	-33	13	-09	8							
D	60+	26	58+	59+	53+	65+	40+	06	44+	41+	14	47+	-27	23	-06	-29	22	34	7							
H	60+	14	59+	58+	44+	59+	51+	12	49+	04	50+	-32	13	-03	-06	-29	22	-04	9							
MAACL General A	49+	23	40+	38	51+	37+	31	13	25	08	04	50+	-32	13	-03	-14	33	10	4							
D	29	21	39+	27	35	46+	05	10	25	08	03	32+	-27	30	-06	-30	29	-04	4							
H	25	-00	24	27	08	30+	16	04	28+	20	-06	32+	-27	30	-06	-30	29	-04	4							
TAT A	08	45+	08	27	42+	17	32	33	17	31	37	15	02	47+	09	01	35	09	3							
D	03	30	13	25	23	26	25	08	23	51+	17	41+	-03	37	09	08	41+	21	2							
H	02	28	-03	02	24	-06	10	44+	02	15	35+	06	06	30	06	-16	40	02	2							
HIT Anx	-03	31	-01	06	15	-11	17	15	04	34	13	11	-20	28	09	-19	47+	03	0							
Ho	13	32	15	32	28	25	-00	-02	-02	33	07	20	01	-05	32	07	07	0	1							
Sh	-20	-04	-24	-29	-20	-35+	-38+	03	-34+	-16	29	-16	54+	-07	-15	39+	09	11	0							
C	-29	30	-17	-23	08	-21	-20	-25	-28+	-08	24	-24	31	31	22	19	33	17	1							
# Rejections	31	-21	30	-02	-08	13	11	-35	17	-15	30	02	12	-12	05	-09	-08	-12	2							
X RT	13	04	00	08	13	-01	12	46+	09	-05	50+	02	03	-05	-09	-07	-08	-12	0							
No. Sig. r's	10	3	9	6	17	7	8	14	11	5	14	2	2	1	2	2	2	1	127							
(out of 25)																			61							

^adecimals omitted
^bp < .05, +p < .01

greater reliability, and possible validity, of the ratings in this group. The questionnaires and MAACL had a number of significant validity coefficients in all groups. The TAT and Rorschach yielded few significant validity coefficients in any of the groups.

In the combined and patient groups, the trait of depression was most validly measured and hostility was least validly measured. In the control group none of the traits yielded an impressive number of validity coefficients, although hostility did a little better because of the correlations of the MAACL hostility measure with the questionnaire and TAT measures.

Concurrent Validity: Correlations of Tests with Observed and Inferred Ratings

The preceding discussion of results has treated ratings as a variable on a par with other variables. The multitrait-multimethod approach is based on construct validity (Cronbach & Meehl, 1955) in which all measures, which are purported to measure a trait, are considered equal, at least until one or more demonstrates a greater number of theoretically predicted relationships with other observations. If we wish to assess some measure of a trait by its relationship with another measure which is presumed to have an intrinsically greater validity or practical usefulness, then we are testing the concurrent validity of the first technique. Because ratings are based, in part, on behavioral observation rather than pure self-report they are often used as criteria against which to test the concurrent validity of test measures.

Table 4 lists the correlations of all of the test measures with the six global rating measures. Overall, 127 of the 450 correlations in this table were significant. One cannot say what chance is because of the high interdependency of the variables. Of the monotrait correlations (those with the six most relevant ratings) 61 out of 180 possible correlations were significant. Many more significant correlations were obtained in

the patient than the control group.

Space does not allow discussion of the detailed results in this table, but a few of the interesting findings not contained in the prior tables should be noted. The IPAT total anxiety score was the only one which correlated significantly with all six of the anxiety ratings (in the control group as well as in the patient and combined groups). The five day mean of Today-form MAACLs did not generally yield greater validity than the MAACL given on the first day, but the General-form of the MAACL was decidedly inferior to both other MAACL measures in correlations with the affect ratings. The Buss-Durkee Hostility Scale only correlated significantly with three of the ratings, but two of these three were with the relevant hostility ratings. The Buss-Durkee Guilt Scale was correlated specifically with Depression ratings, unlike the MMPI Depression scale which correlated with anxiety as well as depression ratings.

All but one of the significant correlations between TAT scores and ratings were in the control group. The HIT scores produced little evidence of concurrent validity except for the Shading score which was negatively related to depression and positively correlated with hostility ratings in the patient group. The only other variable correlating significantly with hostility ratings in the patient group was the MMPI Depression scale which was negatively correlated.

Differences between Patients and Controls (Results of "t" tests)

The patients were significantly higher than the controls ($p < .01$) on all of the anxiety and depression ratings but the two groups did not differ significantly on the two hostility ratings. The patients were significantly ($p < .05$) higher than the controls on all of the questionnaire measures. The patients were significantly higher than the controls on all of the MAACL anxiety and depression scores, but did not differ significantly on any of the hostility scores. On the HIT the controls were significantly higher than the patients on the Shading score

and the patients were significantly higher on the Number of Rejections score. On the TAT, the controls were significantly higher than the patients on the hostility score. There were no significant differences on the TAT anxiety or depression scores.

DISCUSSION

The negative affects of anxiety and depression constitute a trait which distinguishes most psychiatric patients from persons we call normals. Studies using the MAACL (Zuckerman & Lubin, 1965) have shown that the negative affects have high retest reliability in patients but low retest reliability in normals. Under stress normals may reach levels seen in patients but their affective response subsides when the environmental stress is removed, whereas the patients remain in states of affective arousal for weeks or months. Ratings and objective test techniques such as questionnaires and affect word check lists can measure the dysphoric trait of anxiety and depression in patients or a mixed group of patients and normals. In normals, where only a very restricted range of affect can be observed in a one to two hour interview, one must rely more on self report measures which still measure the common trait. Projective measures such as the HIT and TAT show a few significant relationships to other measures of the trait, but the magnitude of their validity coefficients cannot justify their use in any practical situation, and their difficulties in administration and scoring do not warrant their use when simple, more direct, and valid techniques are available. The MAACL, which takes five to 10 minutes to administer and score can furnish a more valid measure of anxiety and depression in a patient, than the TAT and HIT techniques which may take an hour or more to administer and another hour or so to score. Furthermore, the objective techniques may be administered and scored by personnel with minimal training, while the projective techniques generally require the time of a trained psychologist.

Although anxiety and depression trait measures yielded good convergent validity, their discriminant validity was poor. In ratings, questionnaires and checklists, anxiety and depression could not be separated as distinct affects. Acute patients who are anxious were usually depressed and vice versa. Perhaps the chronic, or retarded, depressive cases and the pure anxiety state cases might be separated, but in this sample we did not see such pure cases. Hostility could be separated from anxiety and depression as a distinct affect. The separation was clearest in the ratings, poorest in the checklist, and intermediate in the questionnaire. In the test measures the distinction between hostility and the dysphoria trait (anxiety and depression) was blurred by method variance.

Hostility as a trait, was less adequately measured by test techniques. The Buss-Durkee Hostility questionnaire showed some relationship with this trait as rated from the interview in the combined group, but this questionnaire was equally correlated with the anxiety, inferred measure in this group. In the control group, the 5 day mean MAACL hostility score correlated with both questionnaire and TAT fantasy measures of hostility. Apparently, in the normals there was some consistency between direct self descriptions and fantasy, but on the overt level (ratings) fantasy hostility was correlated with anxiety and depression rather than hostility. In the patient group, the only way to predict overt hostility was from low scores on the MMPI depression scale and high scores on the HIT Shading score. The latter finding is somewhat unexpected since shading has been associated with anxiety and depression in classical Rorschach theory. The HIT shading score is based on texture or gradated type shading. Achromatic color is scored in the color score. The shading score actually showed some negative correlation with these dysphoric affects in the patient and combined groups. Another interesting note on shading is the finding that the controls, as a group, were significantly higher than the patients on this score,

while the patients were higher on all direct measures of anxiety and depression. Holtzman's (1961) norms also reveal that normals are higher on the shading score than schizophrenic or depressed patients. In view of these data it cannot be maintained that shading measures anxiety or depression. Waller (1960) has shown that shading responses in patients are inhibited by their inability to articulate perceptual differentiations. The more overtly hostile patients are probably better able to articulate on the HIT. Depressed patients tend to give fewer color responses as well as shading responses. Depressed controls tend to have longer reaction times to the blots although they do not show any necessary inhibition of color or shading.

Most affect measures are tapping a mixture of trait (consistent behavior) and state (how the subject is at a particular time, but not necessarily how he will be the next hour or day). The two forms of the MAACL were designed to separate state (Today-form) and trait (General-form). Johnson (1966) has provided evidence for the validity of this distinction between the forms. Since the Today-form scales were more highly correlated with the ratings than the General-form, we must conclude that the ratings, whether based on overt behavior in the interview or inferred behavior, were more state than trait measures. The correlations of these two forms with the other test measures (not shown in the Tables) were not very discrepant. From this it may be concluded that the questionnaire, and TAT, are measuring a mixture of state and trait. The low retest reliabilities of the TAT and its susceptibility to experimental influence (Murstein, 1963) are indications of the state aspect of this test. Questionnaires tend to have higher retest reliabilities but are also susceptible to experimental influence, although not as responsive as checklist measures (Johnson, 1966).

The clearer separation of state and trait measurement will help in clarifying the nature of affects. The chronic resentment of the paranoid patient and the

flare-up of a normal in response to some frustration may not be susceptible to measurement by the same kinds of instruments. In fact, what is an affect trait other than an attempt to summarize a series of states over a longer period of time? A new approach to measurement might be to measure states repeatedly, thus enabling one to assess general (mean) level and variability of affects as well as their relationships to specific classes of environmental events and their course during a period of treatment. Personality traits, other than affects, might also be approached this way. Using the Gough-Heilbrun (1965) ACL, for instance, it is possible to follow such traits as achievement, aggression, abasement, heterosexual need, etc., over time, rather than attempting to measure them on one occasion in an omnibus test. What we are suggesting is that personality be treated first as a dependent and then as an independent variable. Such an approach will speed the rapprochement between experimental and personality psychology since it explicitly recognizes the powerful role of the stimulus situation, in interaction with the motivational tendency, in producing behavior.

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Animal Content in the Rorschach

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Summary: A study was made of some of the associations that may be occurring when subjects give animal responses to the Rorschach stimuli. An animal association test requiring a description of each animal name as to most common gender and characteristic associated was administered to 42 sixth grade students and 39 adults.

The subjects saw a predominance of animals as male but only five animals of the 50 presented showed consistent sex stereotypy for both groups: *butterfly* as female; *ape, beaver, dog, and wolf* as male. Twenty-nine animals were characterized as passive and 21 as aggressive; 30 animals elicited negative affect and 20 elicited positive affect. There was a high degree of agreement when responses on the animal association test were compared with responses elicited by the group-administered Rorschach test.

It has become the practice among some diagnosticians to concentrate upon an analysis of the pictorial content of Rorschach responses rather than upon an analysis of the Rorschach record in terms of formal aspects. Perhaps the most significant influence in this direction has come from psychoanalysis. When one realizes, however, that the scientific basis of psychoanalysis itself requires clarification and validation, it is not surprising that the procedures for analyzing the content of Rorschach responses lack sufficiently validated guiding principles.

One of the most frequent responses to the Rorschach stimuli is an animal response; that is, those responses which contain the image of any animal or part of an animal. Interpretation of the animal content is still a rather speculative matter. Several hypotheses about the interpretation of animal content have been offered (Booth, 1946; Goldfarb, 1946; Philips and Smith, 1953). Few of these hypotheses, however, have been adequately validated by empirical research, and W. G. Klopfer (1954) warns that making the assumption that the individual subject is attributing various stereotyped characteristics to the animal he is perceiving is a hazardous procedure. He suggests as an alternative that the examiner try to discover in each case what the subject had in mind regarding this kind of animal; and if this has not become clear in the inquiry, it may be

pursued by requesting the subject to make animal associations during the testing-the-limits procedure. Emphasis is placed on the need for further research in the hope that it will be possible to rely more routinely on stereotypes.

The present study was limited to the investigation of some associations of sex role and descriptive characteristics which may be occurring when subjects perceive animals in the Rorschach stimuli. In other words, the problem was to determine what consistent trends, if any, exist among individuals in assigning sex role and descriptive qualities to animal perceptions.

The following hypotheses were drawn:

(A) That there is stereotypy of sex attributed to certain animal species; for example, a dog is seen as male and a cat as female.

(B) That certain qualities are consistently attributed to a certain animal species; for example, a sting ray is viewed as dangerous or harmful.

(C) That the sex and descriptive characteristics attributed to an animal in an association test of animal names also holds true when the animal is perceived in the Rorschach stimuli.

SUBJECTS

The subjects used in the study were two sub-groups of "normal" individuals. One sub-group was composed of 39 adults representing a wide variety of

ages, home backgrounds, school experiences, and occupations. The other subgroup consisted of 42 sixth grade students from a large elementary school in San Antonio, Texas. These two populations were chosen to determine whether differences exist in the associative content of pre-adolescent and adult subjects.

The pre-adolescent subjects were all between the ages of 11 and 12; and the group was composed of 24 boys and 18 girls, most from lower and middle class homes.

The adult group was composed of 21 men and 18 women ranging in ages from 19 to 70 with a mean age of 32 for men and 42 for women. The median age was 30 for men and 39 for women. In formal education the group ranges from sixth grade through Ph. D. level with a mean educational achievement of three years college for the men and two years of college for the women. The median education level was 2.5 years of college for men and 1.5 years of college for women. The group represents 16 different occupations. The adult subjects were members of an evening class in Conversational Spanish at a college in San Antonio, Texas.

PROCEDURE

Both sub-groups were similarly naive as to the purpose of the study and the testing was done under approximate circumstances. They were allowed to remain anonymous throughout the testing procedure.

Forms A and B of an animal association test were administered to both groups. Form A consists of the names of 50 animals, and the subject is asked to mark whether he usually considers the animal as male or female. If he is unable

to decide, he may so designate. Form B of the test consists of the same 50 animal names, and the subject is asked to free-associate an adjective or descriptive characteristic to each animal. To one-half the subjects Form A was administered first; to the other half of the subjects Form B was administered first. This was done in order to equalize any effect which taking one form might have had on the subsequent form.

To a sub-sample of the original population, twenty of the adult subjects and nineteen of the adolescent subjects, a group Rorschach was administered using a slide projector and screen. The subject was asked to identify all the animals he could find in the Rorschach, then to designate the sex and a descriptive adjective for each animal name. These responses were then compared with the responses that each subject had made two weeks earlier on the animal association test to determine the consistency of associations.

In analyzing the data gathered regarding the sex assigned to the 50 animals, percentages were calculated for each of the following sub-groups: boys, girls, men, and women. Chi-square of difference between per cents was computed to determine the significance.

RESULTS

Table 1 shows those animals whose sex was stereotyped for all groups at the one per cent level of confidence. (Hypothesis A). Only five of fifty animals are clearly defined as to sex role by all sub-groups.

The predominance of male animals (4 male animals to 1 female) is noted in this table. This same tendency is noted throughout with the ratio of 73 per cent

Table 1—Animals Stereotyped as to Sex for All Groups

Animal	Sex	% Age Girls (n=18)	% Age Boys (n=24)	% Age Men (n=21)	% Age Women (n=18)	N=81
Butterfly	F	83	83	90	89	
Dog	M	82	92	100	95	
Beaver	M	83	83	86	83	
Ape	M	82	98	100	95	
Wolf	M	88	91	90	88	

male animals to 27 per cent female animals being stereotyped for at least one sub-group.

There are 20 other animals whose sex role was significantly stereotyped at the one per cent level for at least one of the four sub-groups. These data are presented in Table 2.

It is interesting to note that the assign-

ment of sex role is in some instances quite specific to the sub-group. Boys view *monkey* as male and *deer* as female; girls see *crab* and *cockroach* as male; these assignments are significant only with the respective sub-group. Perhaps more important than this, however, is the fact that the adult group identifies five animal names as sex-typed which

Table 2—Animals Stereotyped as to Sex for at Least One Sub-Group

Animal	Sex	% Age Girls	% Age Boys	% Age Men	% Age Women
Crab	M	88 ^{***}	42	62	50
Horse	M	66	58	90 ^{***}	95 ^{***}
Beetle	M	77 ^a	58	90 ^{***}	95 ^{***}
Crow	M	66	58	90 ^{***}	88 ^{***}
Elephant	M	50	50	86 ^{***}	72 ^a
Chicken	F	72 ^a	58	71 ^a	100 ^{***}
Sheep	F	77 ^a	75 ^a	90 ^{***}	88 ^{***}
Vulture	M	72 ^a	92 ^{***}	76 ^a	88 ^{***}
Goose	F	77 ^a	66	86 ^{***}	72 ^a
Monkey	M	61	83 ^{***}	71 ^a	55
Deer		F 66	F 83 ^{***}	M 55	F 72 ^a
Woodpecker	M	82 ^{***}	75 ^a	76 ^a	83 ^{***}
Camel	M	88 ^{***}	91 ^{***}	62	83 ^{***}
Cockroach	M	82 ^{***}	50	66	50
Baboon	M	82 ^{***}	66	81 ^{***}	83 ^{***}
Frog	M	72 ^a	91 ^{***}	76 ^a	66
Donkey	M	88 ^{***}	50	95 ^{***}	77 ^a
Owl	M	77 ^a	75 ^a	66	88 ^{***}
Eagle	M	50	66	100 ^{***}	95 ^{***}
Bear	M	50 ₄	75 ^a	86 ^{***}	50

^{***} Significant at or beyond the One Percent Level

^a Significant at or beyond the Five Percent Level

Table 3—Reversals in the Assignment of Sex Roles

Animal	% Age Girls	% Age Boys	% Age Men	% Age Women
Calf	M 55	M 58	F 56	F 61
Snail	M 66	M 50	? 43	? 50
Skunk	M 61	F 58	F 71	M 57
Mouse	M 77	M 50	F 62	F 61
Worm	M 72	F 58	? 51	? 48
Ant	F 61	F 58	M 55	F 55
Deer	F 66	F 83	M 55	F 72
Yellow Jacket	F 55	F 50	M 62	M 61
Spider	M 61	F 55	F 77	F 72
Sting ray	M 44	M 58	M 55	? 66
Pig	F 58	F 58	M 57	F 72
Praying Mantis	M 50	F 66	? 40	M 44

the pre-adolescent group does not. These animals are: *beetle, crow, eagle, horse, and sheep*.

Another finding with regard to sex assignment is the appearance of reversals. While the quantitative differences as measured by the Critical Ratio are not significant, it is interesting to note their presence. Table 3 describes the ways the reversals appeared.

The results derived from Form B of the animal association test indicate that there is a high degree of consistency in assigning descriptive characteristics to animals. (Hypothesis B). This data does not lend itself easily to quantitative analysis since the subject was left entirely free to choose his own descriptive words. The qualities suggested by the subjects have been condensed into the terms used in Table 4.

was most often described as lacking in energy or will, e.g. *slow, helpless, timid*. An animal was assigned to the aggressive category when described as active, forceful or assertive, e.g. *industrious, powerful, or stinging*. Any favorable attitude attributed to the animal categorized him as "positive affect", e.g. *beautiful, kind, smart*, etc. An assignment of "negative affect" was given when the animal was seen as generally undesirable, e.g. *smelly, dumb, dirty*.

All of the 50 animals names were categorized according to whether they were seen predominantly as passive with positive affect, aggressive with positive affect, passive with negative affect, or aggressive with negative affect. This material is not presented due to space limitation. More female animals are concentrated in the group seen as passive with positive

Table 4—Animals Stereotyped as to Description

Animal	Sex	Description	% Age Adults	% Age Children
Butterfly	F	beautiful, delicate	70	100
Rabbit	F	timid, soft, cute	81	75
Calf	?	helpless, innocent	55	91
Elephant	M	large, lumbering	72	82
Deer	F	timid, swift	87	80
Beaver	M	industrious, eager	80	83
Bat	M	black, weird	90	80
Worm	?	wiggly, crawling	84	85
Cockroach	M	dirty, ugly	80	90
Donkey	M	stubborn, dumb	82	75
Pig	?	fat, dirty	90	95
Skunk	?	smelly, stinky	80	85
Vulture	M	preying, repulsive	92	90
Scorpion	M	stinging, dangerous	94	86

The percentages given in the table refer to the percentage of responses in each case which suggested that the animal be thus categorized. This number can be considered then as an index to stereotypy of characteristics.

The characteristics assigned to each animal were used as criteria for assignment to one of four groups on the basis of two dichotomies: passive-aggressiveness and positive-negative affect. Passive assignments were given when the animal

affect. The only exceptions were *bee* which was categorized as positive-aggressive and *chicken* and *goose* which were classified as negative-passive. It is also interesting that 30 animals elicit negative affect, 20 elicit positive affect. Twenty-nine animals are described as passive; 21 are described as aggressive. All of the aggressive animals are male with the exception of *bee*, and here the percentages are low.

It was found that subjects differ in at-

tributing positive and negative characteristics to sex role according to their own perceptions of sex role in general. The data were studied by selecting animals with a high degree of sex stereotypy; then, recording the descriptions of boys and girls who agreed with the majority of opinion as to sex role. Table 5 presents those characteristics most often attributed to male and female animals by most boys.

who deviated greatly in assigning sex role to the animal names. The animals with a high degree of stereotypy were used again. This time, however, those subjects who saw the animal as being of a different sex than the majority of their classmates were studied. For example, if a subject marked *dog* as female (it is stereotyped as male), the description which the subject attributed to *dog* was recorded under *Male Animals* in Tables

Table 5—Characteristics Attributed to Male and Female Animals by Most Boys

Male Animals		Female Animals	
Masculine	Ugly	Dainty	Beautiful
Strong	Long	Small	Pretty
Sly	Big	Sure-footed	Little
Scavenger	Noisy	Graceful	Swift
Brave	Swimmer	Wise	Quacking
Vicious	Cultured	Clucking	Scared
Mean	Sharp	Lovely	Feminine
Big	Moving	Fat	
Hungry	Pecking		

Table 6—Characteristics Attributed Male and Female Animals by Most Girls

Male Animals		Female Animals	
Big	Desert	Tiny	Lamb
Dangerous	Beautiful	Pretty	Eggs
Brown	Long	Fluffy	Furry
Sly	Noisy	White	Cute
Tricky	Ugly	Small	Fat
Large	Hopping	Baby	Beautiful
Huge	Mean	Rat	
Nice	Red		

Table 6 lists those characteristics most often attributed to male and female by girls.

The marked differences between the responses of boys and those of girls indicate some degree of sex-typing, and attitudes toward members of their own and the opposite sex are revealed.

As a corollary to the data presented in Tables 5 and 6, an investigation was made of the characteristics attributed to the animal sexes by those boys and girls

7 and 8.

It can be easily noted in Tables 7 and 8 that more negative qualities are assigned to both sexes when subjects were in disagreement with the majority of their peers in assigning sex roles.

The application of the data presented thus far in the paper to Rorschach interpretation depends in large measure upon whether subjects make similar animal associations to the Rorschach test itself. When Rorschach responses of a sub-

Table 7—Characteristics Attributed to Male and Female Animals by Boys Who Deviated in Assigning Sex

Male Animals		Female Animals	
swift	little	light	dainty
strong	small	wise	sharp
gripping	tiny	small	mad
fierce	mean	mean	knows directions
small	hoggish	big	strong
vicious	ugly	slow	
sly	fast	fat	
powerful	dainty	moving	
smart	fat		
biting			

Table 8—Characteristics Attributed to Male and Female Animals by Girls Who Deviated in Assigning Sex

Male Animals		Female Animals	
little	nasty	nasty	gentle
tiny	fat	flighty	stinky
strong	mean	dark	fat
big	ugly	slow	green
foul	black	small	funny
stinging		big	sly
		mean	

sample of 20 adults and 19 adolescents were individually compared with responses given two weeks earlier on the animal association test there was significant consistency (Hypothesis C). Of the 86 comparable responses only six showed variation; four involved the descriptive words and two involved the sex role. This finding suggests that the associative function of the animal association test is comparable to that elicited in Rorschach testing.

DISCUSSION

The data indicate that there is stereotypy of sex attributed to certain animal species (Hypothesis A). However, there are few. There were only five animals of the 50 presented which showed consistent stereotypy for all groups. The only female animal in this group was *butterfly*; male animals were *ape*, *beaver*, *dog*, and *wolf*. The psychoanalytic interpretation of universal sex role for certain animals comes under question. For example, in

this present work *horse* is not seen consistently as male; neither is *spider* seen as consistently female. There is a possibility that this symbolism exists at a more subconscious level so that the subject is not aware and thus unable to verbalize the association or perhaps the symbolism is limited to psychiatric cases.

Also, the interpretation of animal content of children's Rorschach protocols may be quite different from the same content in the records of adults. At any rate, the suggestion is made that extreme caution should be exercised in assuming that certain sex symbolism exists for all subjects.

The subjects saw a predominance of male animals: 73 per cent were seen as male and only 27 per cent as female. This finding is attributed to a generalized association of "animalness" to "maleness" rather than to "femaleness."

The appearance of reversals in sex assignments was an unexpected result. Particularly interesting, for example, is

the fact that while all other groups see *deer* as female, men see it as male. This may reflect an association to the popular sport of hunting in which the buck is valued over the doe. Also noteworthy is that the *spider*, usually interpreted in psychoanalysis as female, is seen by girls as male; in fact, the percentages are not highly significant for any group though they approach significance for adult groups. Such findings suggest that either the symbolism usually associated with the possessive mother is so highly repressed as to be untapped by this test, that analysts have over-generalized in their application of this symbolization or that the symbolism applies only to a psychiatric group. Another interesting example is that women and girls see *skunk* as male; boys and men see *skunk* as female. In all the findings thus far presented there has been more contrast between groups according to age than according to sex. That is, more differences are discerned when adults are compared with children than when boys are compared with girls or men are compared with women.

It was found that some qualities are consistently attributed to certain animal species (Hypothesis B). These descriptive responses can be categorized as passive or aggressive with positive or negative affect. Twenty-nine animals were characterized as passive and 21 were aggressive. It is interesting that 30 animals elicited negative affect; 20 elicited positive affect. Most of the female animals were seen as positive and passive.

More consistency with psychoanalytic interpretation was found in descriptions than with sex assignments. For example, the *eagle* was seen as majestic and souring, the *bee* as busy and hard-working, the *fox* as sly and clever, the *snake* as slimy and long, and the *spider* as frightful. All of the aggressive animals (except *bee*) were considered male. This suggests that aggressiveness is usually considered a masculine attribute. Also, all of the animals which were sex stereotyped for all groups appear with positive affect with the exception of *wolf* which falls into the negative-aggressive category.

Perhaps the most important generalization to be made is an idea of the qualities considered valuable by the experimental subjects. Passive attributes like softness, peacefulness, innocence, and friendliness are valued as are aggressive features of strength, industry, and cleverness. This may well give some insight into the value hierarchy of the sample population. The characteristics which are negatively valued are as follows: Dirtiness, stupidity, clumsiness, slowness, stubbornness, smelliness, slyness, harmfulness, and painfulness.

There was a high degree of agreement when responses on the animal association test were paired with their equivalent responses elicited by the Rorschach test (Hypothesis C). This suggests that the findings of this study have application to Rorschach interpretation.

Also, the responses of boys and girls indicate that as groups they attribute different characteristics to "maleness" and "femaleness." In general boys emphasize the positive aspects of maleness and both positive and negative features of femaleness. The girls emphasize the positive aspects of femaleness and both negative and positive features of maleness.

Those boys and girls who deviate from the average in assigning sex role show a predominance of negative feelings toward both sexes. This is interpreted as suggesting their own insecurity and frustration in sex-role acceptance. Future research should include some criterion or index of psychosexual adjustment.

The pre-adolescent shows less tendency to assign sex roles to animals than does the adult. While adults use a wider range of vocabulary to describe the animals, the concept of stereotypy is about the same for children as for adults.

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A Comparison of Drawings and Sentence Completion Responses of Congenital Heart Children With Normal Children¹

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Summary: The House-Tree-Person, Sentence Completion and Inside-of-the-Body tests were administered to 20 congenital heart children and their matched controls. The stories of the H-T-P test of the congenital heart children tended to have more themes about illness-health, and life-death than those of the normal children. Similarly, more themes of illness-health were found in the congenital heart children on the Sentence Completion test ($P < .001$). Although the congenital heart children did not draw a greater number of hearts than the control children, they did reveal a tendency to draw relatively larger hearts and relatively fewer other internal organs ($P < .05$).

A major implication of the findings is that the body distortion of a congenital heart child pertains more to his perception of the inside of his body than to the view of his external body. This suggests that the Inside-of-the-Body test would be a useful addition to projective techniques aimed at investigating distortion of body image by the physically handicapped.

Research concerned with the physically handicapped has primarily been done with physical disabilities that are visible. Abel (1953) studied facial disfigurement, Noble, Price, and Gilder (1954) and Wille (1954) adult male war amputees, Silverstein and Robinson (1956) poliomyelitis, Wenar (1956) cerebral palsy, and Centers and Centers (1963) amputee children.

This research project compares children who have a handicap that is not visible (congenital heart disease) with a group of normal children. In order to penetrate the emotional life of the subjects, the House-Tree-Person, Sentence Completion, and Inside-of-the-Body tests were used.

Research by Buck (1948) and Machover (1951) has pointed out the importance of the House-Tree-Person (H-T-P) and Draw-A-Person (DAP) tests in reflecting one's self-image. Green and Levitt (1962) found that congenital heart children tended to depict themselves graphically smaller than did normal children on the Draw-A-Person test. The authors inferred that children with congenital heart disease had a con-

stricted view of their bodies. However, Silverstein and Robinson (1956) and Centers and Centers (1963) found no differences in the drawings of handicapped and normal children.

The Sentence Completion test is another important tool used to examine the affective responses of people (Rhode 1957). Freed and Cruickshank (1953) used a projective sentence completion test to investigate feelings of fear among cardiac children. The findings indicated that fear of their handicap significantly differentiated the cardiac children from their matched physically normal controls.

Tait and Ascher (1955) published a preliminary report on the Inside-of-the-Body test. They noted that the DAP focused mainly on the perception of one's physical exterior. Their report described a new projective test which focused on the perception of the interior of one's body. Tait and Ascher observed that medical and surgical patients tended to emphasize the organ or organ systems involved in their illness.

The following two hypotheses were tested by the authors: (1) themes of illness-health and life-death would be more prevalent in the stories of the

¹ This investigation was supported in part by the 1963 and 1964 National Institutes of Health General Research Support Grants and in part by a grant (2292 M30) from the Florida Council on Training and Research in Mental Health.

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House-Tree-Person and Sentence Completion responses of congenital heart children than in the stories of normal children, and (2) the congenital heart children would draw more and larger hearts and fewer other internal organs on the Inside-of-the-Body test than the normal children

SUBJECTS

The experimental subjects consisted of 20 children with congenital heart disease who were admitted for cardiac evaluation over a three month period to the University of Florida Teaching Hospital. Of the 20 children, 12 were girls and 8 were boys. The ages of the subjects ranged from 4 to 14 years with a mean of 8.8 years. Two of the twenty children were Negro and the remaining 18 were white. The diagnoses of the subjects included a wide variety of cardiac and vascular abnormalities (see Table 1 for more detailed information). Five of the children had been catheterized previously. Four had been both catheterized and had surgery. One child had undergone surgery without previous catheterization. The remaining ten children neither had been catheterized nor had surgery at the time of the interview.

Twenty control children without cardiac or other physical disabilities were obtained from the area surrounding the University of Florida Teaching Hospital. These children were matched with the experimental subjects for age, sex, grade in school, intelligence, and occupational level of the father based on the United States Bureau of the Census Ratings (1963). The average age of the subjects was matched within less than one month and the average intelligence quotient was within 8 points of that of the handicapped children. An exact matching of sex, race, grade in school, and occupational level of the father was obtained for the children in each group.

PROCEDURES

Each child in the experimental and control group was tested and inter-

viewed by either a child psychiatrist or a medical student trained and experienced with this procedure. The tests consisted of the following: 1) Peabody Picture Vocabulary (Dunn 1959), 2) House-Tree-Person, 3) Sentence Completion³ and 4) Inside-of-the-Body. The Peabody Picture Vocabulary test was used to obtain a measure of the intellectual ability of the subjects. Each child was asked to draw a house, tree and person (one of the same and one of the opposite sex) and tell a story about each of these representations. A sentence completion form was read to each subject and his verbatim responses were recorded for subsequent evaluation. Finally, each child was asked to make a drawing of what he thought was inside of his body and to label the parts he had drawn.

The raters (actual interviewer plus two other members of the research team) recorded the sizes of the H-T-P drawings and the themes of the stories. The sentence completion responses were rated according to the number of times certain themes, such as illness-health or life-death, were mentioned. Finally, the Inside-of-the-Body test scoring involved an enumeration of the body organs that were drawn and the determination of the relative size of the hearts drawn, if any. All of the ratings described above were done without foreknowledge by the raters as to whether the child was a member of the experimental or control group.

RESULTS⁴

A comparison of the size of the House-Tree-Person drawings between the experimental and control groups revealed that the congenital heart children drew significantly larger houses than the con-

³ The Sentence Completion test is one that the Child Psychiatry Division at the University of Florida has been utilizing for the past 6 years. It consists of 35 statements, adapted from a lengthier Sentence Completion test by Holsopple and Miale (1954).

⁴ Appreciation is expressed to Dr. Marshall B. Jones for his critical evaluation of various aspects of this paper.

Table 1

Age, Sex, Race and Diagnosis of the Cardiac Children

Child	Age (Years)	Sex	Race	Diagnosis (After Evaluation)	Prior Catheter- ization	Prior Surgery
1	5.0	F	W	Atrial Septal Defect	Yes	No
2	5.0	F	W	Atrial Septal Defect	No	No
3	6.0	F	W	Atrial Septal Defect	No	No
4	7.5	M	W	Pulmonary Valvular Stenosis	Yes	Yes
5	11.1	M	W	Atrial Septal Defect	Yes	No
6	11.2	M	W	Pulmonary Valve Insufficiency with Idiopathic Dilatation of Main Pulmonary Artery	No	No
7	5.5	F	W	Ventricular Septal Defect	No	No
8	10.1	F	W	Pulmonary Valvular Stenosis	Yes	No
9	7.3	F	N	Ventricular Septal Defect	No	No
10	11.7	F	W	Ventricular Septal Defect	Yes	Yes
11	11.0	F	W	Aortic Stenosis	No	No
12	13.0	F	W	Tetralogy of Fallot with Bilateral Blalock-Taussig Procedures	Yes	Yes
13	11.7	F	W	Ventricular Septal Defect	Yes	Yes
14	8.3	F	W	Ventricular Septal Defect with Aortic Valve Insufficiency	No	No
15	4.5	M	W	Endocardial Fibroelastosis	No	No
16	14.0	M	W	Pulmonary Valvular Stenosis	No	No
17	6.0	M	W	Aortic Stenosis & Insufficiency	No	No
18	9.4	F	N	Tetralogy of Fallot with Bilateral Blalock-Taussig Procedures	No	Yes
19	12.8	M	W	Muscular Aortic Stenosis	Yes	No
20	5.9	M	W	Hypertrophic Subaortic and Subpulmonic Stenosis	Yes	No

trol children ($P < .05$) (See Table 2). This difference held true regardless of the ages of the matched pairs. The means for the two groups of the heights

of the trees drawn and the heights of the persons drawn of the same and opposite sex were too close to reveal any distinguishing tendencies.

Table 2

Comparison of the Size of House-Tree-Person Drawings for the Experimental and Control Group

Drawings	Experimental		Control		Level of Significance ^c
	Mean	S. D.	Mean	S. D.	
House ^a	30.65	21.24	24.76	19.60	$P < .05$
Tree ^b	14.48	6.92	17.01	7.67	N. S.
Person (same sex) ^b	10.60	4.83	9.25	4.65	N. S.
Person (opposite sex) ^b	9.29	4.91	8.30	4.28	N. S.

^a Size of house was determined by measuring the percentage of the page the drawing occupied.

^b Size of the tree and person was determined by measuring the height of the drawings in centimeters.

^c t-test for the difference between correlated means.

The stories of the H-T-P test of the congenital heart children tended to have more themes about illness-health, life-death than those of the normal children (See Table 3). Similarly, more themes of illness-health were found in the congenital heart children on the Sentence Completion test. This difference was

significant at the .001 level. Both these differences were independent of the ages of the children in the two groups. No difference in the frequency of life-death themes was found between the experimental and control groups on the Sentence Completion test. No other themes were prominent in either the

Table 3

Number of Themes on H-T-P Drawings and Sentence Completion Test for the Experimental and Control Groups

	Experimental		Control		Level of Significance ^a
	Mean	S. D.	Mean	S. D.	
H-T-P Themes					
Illness-Health	0.353	0.762	0.100	0.300	N. S.
Life-Death	0.588	0.256	0.200	0.510	$P < .10$
Sentence Completion Themes					
Illness-Health	3.750	3.59	0.550	0.740	$P < .001$
Life-Death	0.438	1.09	0.550	1.20	N. S.

^a t-test for the difference between independent means, since complete data were available on 17 matched pairs only.

stories of the H-T-P test or on the Sentence Completion test.

On the Inside-of-the-Body test there was no significant difference in the number of hearts drawn by the congenital heart and normal children (See Table 4). However, if the differences between the matched pairs were ranked by age, it turned out there was a significant relationship. In a younger pair, the affected child was more likely to draw a heart than his matched control; in an older pair the affected child was not more likely to draw a heart than his matched control ($P < .05$, Mann-Whitney U). There was a tendency for the congenital heart children to draw relatively larger hearts. This tendency was unrelated to the ages of the children in the experimental and control groups. The number of organs and organ systems depicted, other than the heart, was significantly different between the 2 groups ($P < .05$). The normal children drew significantly more internal body parts than the congenital heart children. In addition, if the heart was included, this difference was more marked in the older children. That is, in an older

pair, the affected child was more likely to draw a lesser number of organs and systems than his matched control; in a younger pair, the affected child was more likely to draw a greater number of organs and systems than his matched control (Kendall rank correlation coefficient, $\tau = 0.32$, $P < .05$).

DISCUSSION AND IMPLICATIONS

The congenital heart children as a group were reticent to discuss their feelings about their illness during the clinical interview. One sensed that they had many concerns about their congenital heart disease which they denied and suppressed. The themes of the stories of the H-T-P and Sentence Completion tests provide evidence of their preoccupation with health and illness, and life and death, thus tending to substantiate the first hypothesis. These results also illustrate the value of these techniques in bringing out suppressed and repressed concerns of these children.

Several results of interest were revealed by the Inside-of-the-Body test. Although the two groups did not differ

Table 4
Comparison of Experimental and Control Children
on the Inside-of-the-Body Test

	Experimental		Control		Significant Level
	Mean	S. D.	Mean	S. D.	
Number of Hearts					
Drawn	0.750	0.242	0.500	0.158	N. S. ^b
Relative Size of					
Hearts ^a	0.222	0.262	0.079	0.035	$P < .10$ ^c
Number of Organs					
and Systems (excluding					
the heart)	1.900	1.94	3.450	3.83	$P < .05$ ^b

^a The relative size of the hearts was obtained by dividing the area of the heart in cm^2 by the area of the thorax in cm^2 .

^b t-test, for the difference between correlated means.

^c Mann-Whitney U Test, because of grossly unequal variances.

significantly in the number of hearts drawn, the experimental group drew relatively larger hearts and fewer of the other internal organs. It appeared that the congenital heart children from a young age saw the inside of their bodies as predominantly composed of their hearts. Normal children on the other hand, as they became older viewed the inside of their bodies as composed not only of their hearts but of a variety of other organs. Their internal body perception thus showed evidence of differentiation as they grew older whereas the internal perception of the congenital heart children remained focused and fixated to a much greater degree on the heart. These findings tended to substantiate the second hypothesis.

The overall results of the DAP and Inside-of-the-Body tests suggest that the body image distortion in congenital heart children pertains more to their perception of the inside of the body than to their external view of it. This may also hold true for other handicapped persons whose disabilities are internal and not visible, as in the case of stomach ulcers and internal cancer. The Inside-of-the-Body test would appear to be a useful addition to projective techniques aimed at investigating distortion of body image.

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MMPI Item Changes by College Students Under Ideal-Self Response Set¹

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Summary: This paper reports item changes when college students were asked to assume a set to the MMPI in which they answer as they "would like to be." Accumulated evidence from several populations separated by a period of years and by culture background demonstrated a consensual profile. While weighted in the direction of social favorability, the group profile is distinguished by a theme of self-mastery in social situations. Item analysis indicated an area of idealized acceptance or rejection of items which has potential value in personality assessment. The findings also have implications for desirability as a factor in MMPI records and for the validity of "subtle" items.

Analysis of the "ideal-self" as related to the "real-self" holds considerable meaning for personality assessment. Research has shown that the discrepancy between these two types of self concept offers an indication of personal adjustment. In the broadest terms, the work reported here is aimed at systematic measurement of real vs. ideal self-assigned characteristics.

In a previous study (Zimmerman & Gloye, 1959), administration of the MMPI to various populations of college students under ideal-self instructions ("answer as you would like to be rather than as you really are") produced a general profile. The profile is readily identified by a sharp "V" on the validity scales, *L*, *F*, and *K*. Conclusions from the earlier work are as follows: (a) The general ideal-self profile is more homogeneous than real-self profiles (indicated by an overall reduction in SDs of scores). (b) The ideal-self profile is similar for normal college men and women of differing backgrounds and career goals. It also resembles the "ego-ideal" profiles of hospitalized military and veteran psychiatric

patients (Grayson & Olinger, 1957; Rapaport, 1958). (c) The ideal-self response set places heavy weight in the direction of socially favorable responses. (d) The perceived ideal-self as revealed through the MMPI is unrealistically flawless, free from anxiety and worry, active, and effectively defensive.

The present study seeks to answer several questions arising from past work. Specifically: (1) Is the ideal-self response set subject to variations resulting from testing during different college years? (2) Is the ideal-self profile similar for differing cultures as well as differing populations within the United States? (3) What is the nature, in detail, of item changes when Ss are asked to adopt the ideal self set?

METHOD

A group of college freshmen for whom MMPI records were available completed the test (short form) again two months after its original administration. The original records were gathered as part of a test battery routinely given entering students for counseling purposes. On the second occasion Ss were given the following instructions. "Previously you took this inventory and answered the statements as best you could. Today, you are asked to take the inventory again, but this time to answer the statements dif-

¹ The authors wish to acknowledge the help given by Mrs. Joellen Mann Windsor in developing computer programs and by Miss Penny Hill who aided materially in data processing tasks.

² Now with the Office of Naval Research, Pasadena Branch.

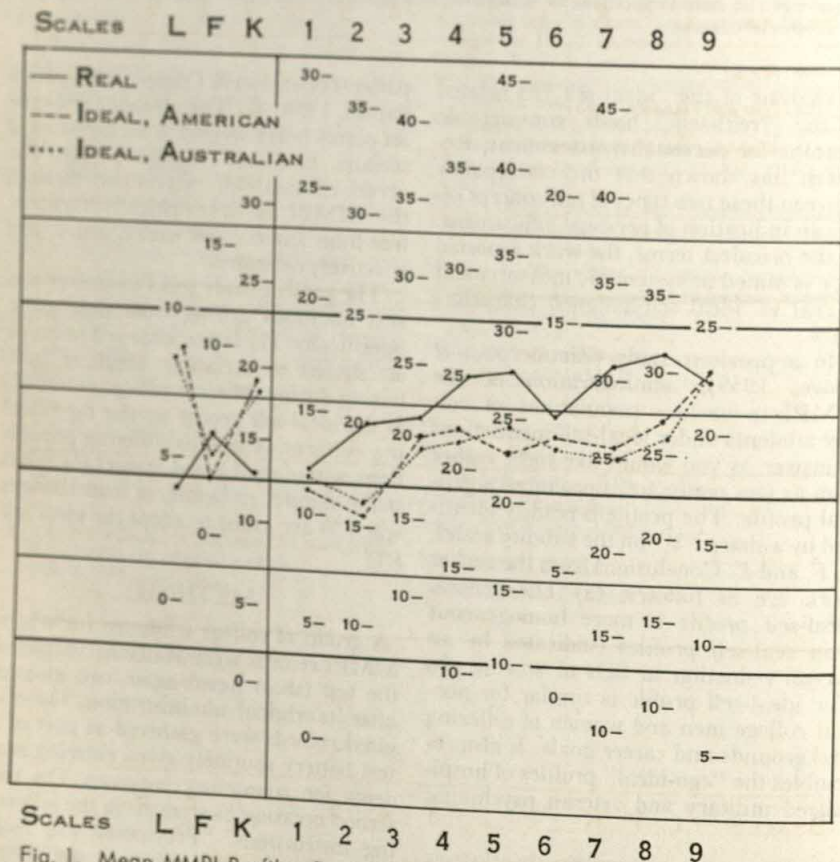
ferently. Suppose you could change into your 'ideal,' that is, the person you hope to be. This time answer the statements as that 'ideal-self,' as though you actually were the kind of person you would like to be. In other words, as you wish you could honestly respond." A small sample ($N=8$) received the ideal-self administration first, since for various reasons they failed to complete the MMPI in routine testing at the beginning of the college year. Later this group received the test under standard conditions. Inspection of these records showed no special bias attributable to order of administration so

they were pooled with others collected to make a population of 76 Ss, 41 males and 35 females.

Through the generous efforts of Ronald Taft, University of Western Australia, 51 ideal-self profiles (collected with the instructions given above) were made available as a comparison group.

RESULTS.

Each S's answer sheet for the original test ("Real") and for the ideal-self record ("Ideal") was coded onto IBM punch cards. A computer program was written to determine profiles. Another program



was written to explore item changes from Real to Ideal, identifying items according to the number of Ss who changed their responses and the direction of the change (T-F and F-T).

Comparison of Ideal profiles produced in the present study with the earlier (Zimmerman & Gloye, 1959) study demonstrates that the ideal-self response set reliably produces a general profile (see Figures 1, 2, 3, 4). In replication over the span of six years the observed effects of the ideal-self instructions suggest no significant change. Typical profiles for college men (Goodstein, 1954)

and college women (Black, 1956) are included in Figures 1 and 2 respectively as a reference. The striking degree of similarity for records of Australian college students and those for American college students is made apparent through Figures 3 and 4. Assessing the total results of MMPI records produced with the ideal-self instructions, it seems safe to say at this point that we are dealing with a predictable consensus of idealized acceptance and rejection of characteristics represented in the MMPI item pool.

Item analysis shows, as expected from

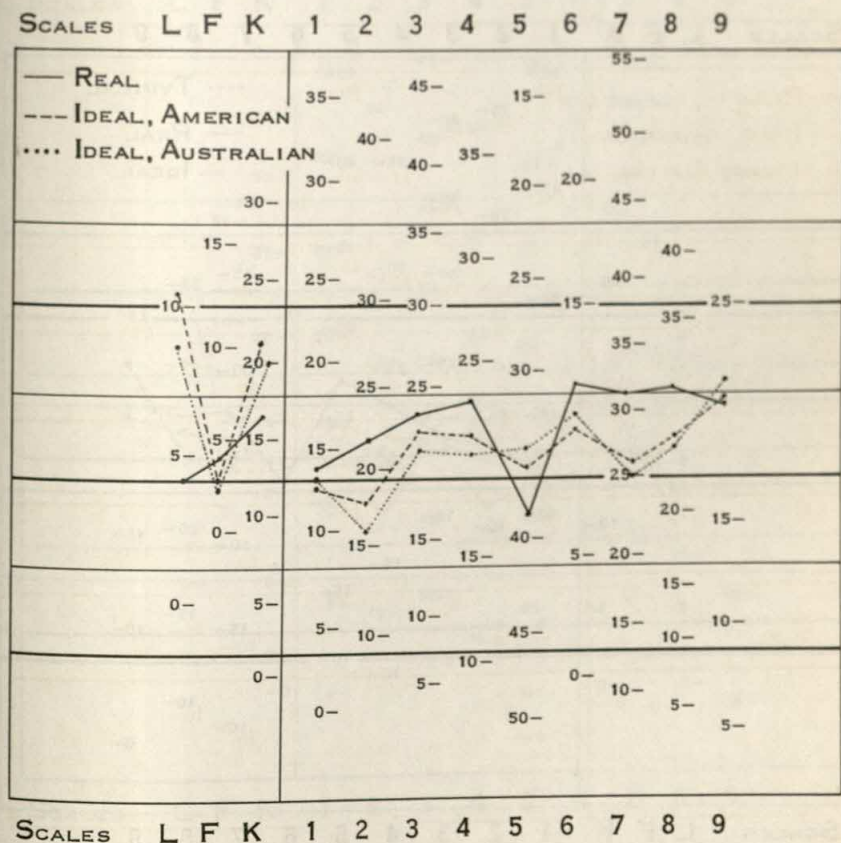


Fig. 2. Mean MMPI Profiles, Real and Ideal, College Women, 1965 Sample (N=35); Ideal Australian College Women (N=20).

"normal" populations, considerable item stability from Real to Ideal. On the average 78% of the items remain unchanged. At the same time, in revealing a mean change of 81 items, the analysis clearly indicates the significant effect of the imposed instructional set. Mean change as regards T-F and F-T occurs in proportion to the overall item keying for pathology in the MMPI (mean T-F change = 48, mean F-T change = 33). There is no indication that Ss adopt a "yes-saying" or "no-saying" set.

A total of 51 items were changed consensually by a third or more Ss. This

suggests that of the average 81 item change, the generalized response set accounts for 63% while the remainder is a result of idiosyncratic effects. As a means of comparison, 55 items were identified as unchanged by 95% or more Ss. Using ratings of item favorability gathered by Heineman (1952), investigation was made of median favorability of changed and unchanged items. (The Heineman ratings range from 1, highly favorable, to 5, highly unfavorable.) Results are as follows: Md=1.6 for T-T items (N=8); Md=4.4 for F-F items (N=47); Md=2.2 for F-T items (N=20);

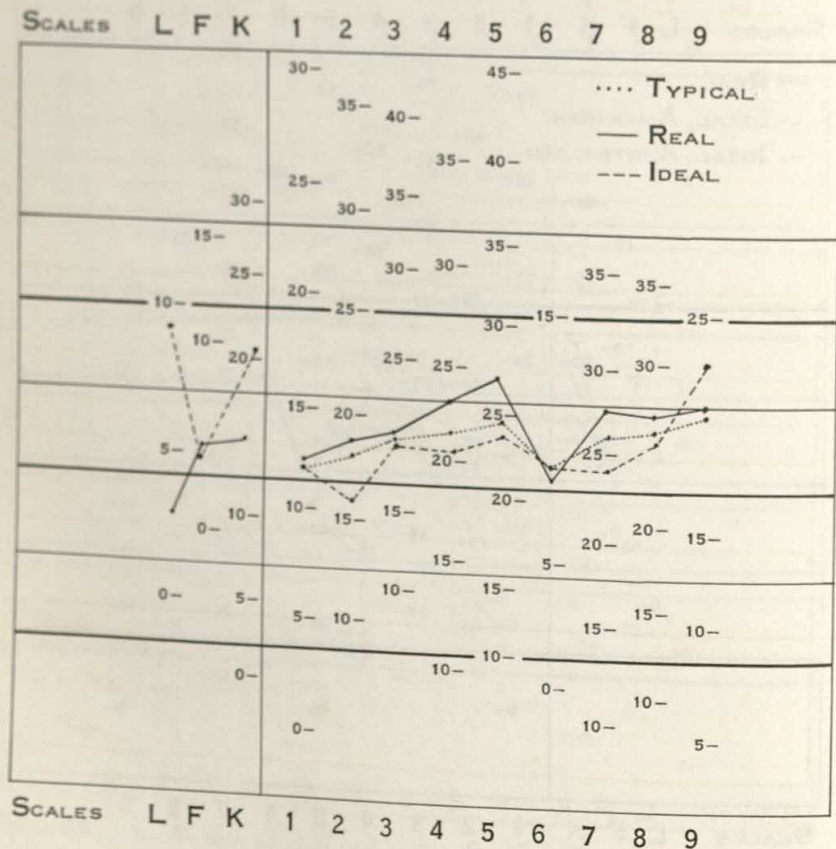


Fig. 3. Mean MMPI Profiles, Real and Ideal, College Men, 1958 Sample (N=89); Typical College Men (Goldstein, 1954).

$Md=3.7$ for T-F items ($N=31$). It is clear that unchanging items are originally answered in a favorable direction. A factor in item stability is the strength of social desirability (favorability). With highly favorable and highly unfavorable items somewhat immune to change under the Ideal set, Ss respond by altering their acceptance or rejection of items closer to median favorability, changing them in a more favorable direction. The changes appear to occur with items for which the social implications are not completely clear because social realities are often confused.

To more fully appreciate the nature of the Ideal set as reflected by responses to MMPI items, it is important to determine the scale placement of "change" and "no-change" items. (Due to the construction of MMPI scales, the same items are often identified with more than one scale. This fact in effect elevates the number of item references in analysis by scales.) Considering the validity scales, 8 *Lie* and 11 *K* items are changed by more than a third of the Ss. By contrast, 30 *F* items, only 1 *K* item, and no *Lie* items show up in the "no-change" group. Since *F* items represent deviant

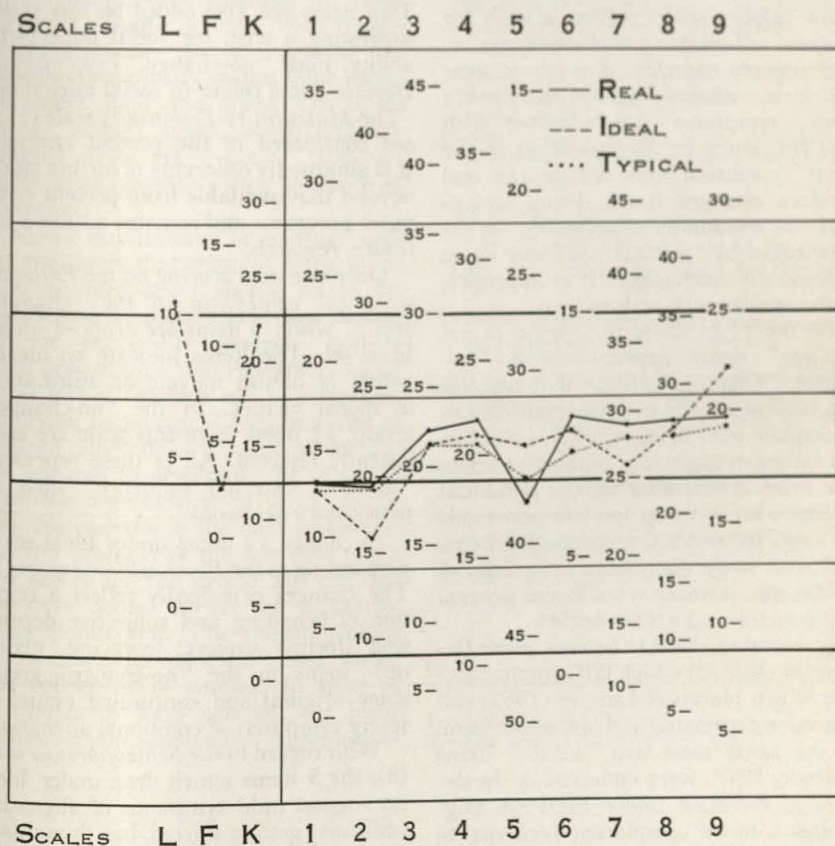


Fig. 4. Mean MMPI Profiles, Real and Ideal, College Women, 1958 Sample ($N=149$); Typical College Women (Black, 1956).

ideas unlikely to be true of normal individuals, the large number of "no-change" items on this scale is not surprising. *Lie* and *K* items identify a defensive attitude or a failure to admit normal foibles. Their validity is enhanced by the fact that so many change under the Ideal set. Changed *Lie* items represent an idealization of a self without human frailties. One is never cross, has bad thoughts, or swears. One never procrastinates, gossips, lies or relaxes table manners. *K* items change less frequently in terms of proportion of items and this is a conformation that they represent more subtle virtues than *Lie* items. Content of items changed on the validity scales reflects a wish for increased self-esteem and effectiveness.

As regards the clinical scales in general, items analysis serves to identify which "symptoms" are admitted with some frequency by *Ss* answering in the "Real" condition, but not desired and therefore changed under Ideal. Symptoms not commonly experienced or acknowledged by "normal" *Ss* show up as consensually unchanged. It is appropriate to consider each scale in turn.

On the *Hypochondriasis* scale (1), 4 "change" items appear and 8 "no-change." Changes indicate that the college student admits to such symptoms as inadequate rest, tiring quickly, eyestrain and failing eyesight. All of these undesirable items are familiar for the perpetual student who stays up too late and reads too long. In contrast, nonchanging items deal with more distressing symptoms of middle age, stomach trouble and general health factors, which are denied.

Ss tended to admit to 6 items on the *Depression* scale (2) which fall into the category which Harris & Lingo (1955) call subjective depression and low self-esteem. At the same time two "subtle" items (Wiener, 1948) were endorsed in the depression direction under Ideal set, suggesting a more complacent response to pressure (not swearing or sweating). The items which show no change on the *Depression* scale are mainly concerned with more severe subjective depression symptoms, which are denied.

Five *Hysteria* items are rejected under

Ideal set. They mainly reflect somatic complaints attributable to repression and conversion of affect. Five items from the *Hysteria* scale (3) are also added. They are all "subtle" items in the category of social complacency and include such responses as denial of bashfulness or uneasiness in social situations. "No-change" items are denials of serious, though vague, somatic complaints and "lassitude malaisie" (Harris & Lingo, 1955).

Ss reversed 4 items under Ideal set, lowering the score on the *Psychopathic Deviate* scale (4). These reflect the admission of social sensitivity (for example, concern over others' opinions). Two items are also added on this scale, suggesting a wish for social imperturbability. Four "no-change" *Psychopathic Deviate* items relate to social alienation.

The *Masculinity-Femininity* scale (5) is not considered in the present analysis. It is admittedly deserving of further study beyond that available from present computer programs and remains a subject for future research.

Only one item scoring on the *Paranoia* scale (6) comes up in the "change" group, while 3 items are dropped under Ideal set. The items indicate an idealization of obtuse naivete or affirmation of moral virtues. In the "no-change" group, 11 items from this scale are consistently rejected. All of these represent "ideas of external influence" such as persecutory delusions.

Ss change 12 items under Ideal set in responding to the *Psychasthenia* scale (7). The changes principally reflect a rejection of brooding and subjective depression (feeling useless, worrying, giving up). Items in the "no-change" group show original and continuing denial of severe symptoms of emotional alienation.

With regard to the *Schizophrenia* scale (8), the 3 items which drop under Ideal set suggest mild symptoms of alienation (difficulty getting started, bad thoughts at times, sometimes hate family members) and form a contrast with extremely deviant items which are rejected by consensus. The latter are described by Harris & Lingo (1955) as measures of disassociation and lack of ego mastery.

Ten items in the *Mania* scale (9) come up in the "change" group. Six are "subtle" additions to the *Mania* score and indicate a wish to remain socially imperturbable (I never worry about my looks, I am sometimes cross). The remaining 4 items (two are "subtle") lower the score on this scale and suggest a rejection of tension and of conflict with family or authority.

DISCUSSION

Analysis of changing items under Ideal set indicates that item content has a meaningful relation with effects observed. Among other findings, the value of Wiener's Subtle scales (1948) is supported. Not one "subtle" item is answered systematically in the same direction under Real and Ideal. On scales having "subtle" items, about half the changing items are "subtle," approximately proportional to their presence in the scales.

Overall implications of findings support the thesis that changes made by Ss under an ideal-self response set to the MMPI add a potentially useful dimension for personality analysis. Profiles which deviate from that repeatedly found in this line of research can be viewed as identifying pathological abnormalities in idealized attributes. It remains for future research to determine the practical diagnostic significance of such deviations. Noteworthy in the most recent data (1965 profiles) is the fact that mean Real scores for the group are elevated over those found earlier for a similar college population. The recent profiles are also more "pathological" than those from college norm studies. In spite of the change in Real profiles, the Ideal profiles remain unchanged. Speculative-

ly, students are experiencing greater stress in today's college setting. They continue, however, to generate an Ideal pattern which involves effective defenses, emotional control in social situations, and a wish to escape stress of all kinds. In expressing the ideal-self through the MMPI item pool, they succeed in producing a more "normal" profile, a fact which seems to indicate some awareness of the dynamics of their maladjustment.

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LETTER TO THE EDITOR:

A Necessary Correction of a Validation Research Study in Handwriting Psychology by D. Kimmel and M. Wertheimer

"Too often negative findings are obtained and reported by researchers who do not have faith in the procedure whose validity they assess." So write D. Kimmel and M. Wertheimer (1966) in a short article entitled, "Personality Ratings Based on Handwriting Analysis and Clinical Judgment: A Correlation Study." One cannot but subscribe wholeheartedly to this sentiment, especially when it is applied to research in the psychology of handwriting. The few published validation studies in this field attest to the singular appropriateness of this sentence.

Even so, this attitude in itself is not a sufficient reason for faulting a researcher; skepticism towards the methods of one's own discipline becomes every scientist. What distinguishes these studies is not the inherent doubt of the experimenters or the apparently negative results, so much as the limited vision and naive methodological handling. This has often been the case in attempts to validate the psychology of handwriting, as any interested reader may establish for himself by consulting such publications as: Crider (1941), Goodenough (1945), Birge (1954), Lepine, Lorr & Golder (1954), and Gabriel-Polsterer (1959). These studies are the standard repertoire for every presumptuous argument against handwriting analysis and they have found their places as star witnesses against this technique in the second class literature. (This literature was reviewed critically elsewhere (Wallner 1965) and will not be discussed further here.)

In the statements that follow, I quote Kimmel and Wertheimer. Frankly, I am at a loss to understand their significance or intent. "In the present study," they state, "every attempt short of contamination was made to enhance the likelihood

tion, *yet none was obtained.*" (Italics mine.) And this "in spite of the strong positive conviction of at least one of the authors about the validity of handwriting analysis in general, and especially of ratings made by the particular Grapho-analyst who cooperated in this study." "Perhaps," they continue, "this can serve to make the lack of evidence of validity in the present study all the more convincing." Coming from scientists, these remarks are both gratuitous and naive.

The only conclusion supported by the study is that under the conditions reported by Kimmel and Wertheimer no conclusion regarding the validity of the psychology of handwriting is possible. As evidence of the inadequacy of the study, one need only glance at the top line of Table 1, which sets forth the inter-correlations of ratings by the two counseling psychologists.

Only in one variable, Clarity of Goals (.74), is the inter-rater reliability adequate—though still not particularly impressive—for a validity study. In two of three instances, their ratings correlate significantly with psychological ratings of handwriting. Thus, with a little caution, these results could be interpreted as positive for handwriting psychology.

Regarding the variables Self-Confidence and Rigidity, the reliability, while statistically significant, is nevertheless too low to serve usefully in a study of this type. As for Frankness and Emotional Control, any inter-rater agreement must be regarded as coincidental. In short, no researcher conscious of his responsibility should use such poor criteria for testing the validity of a technique.

Seldom is it as easy to uncover the

Table 1—According to Kimmel & Wertheimer
Correlations Among Ratings by a Handwriting Analyst
and Two Counseling Psychologists

	VARIABLE				
	Frankness	Self- Confidence	Clarity of goals	Emotional control	Rigidity
Counselor 1 vs. Counselor 2	.36	.57**	.74**	.21	.55**
Handwriting analyst vs. Counselor 1	.02	.21	.40	-.46*	-.36
Handwriting analyst vs. Counselor 2	-.28	.19	.72**	.23	-.12
Handwriting analyst vs. Counselors combined	-.11	.22	.53**	-.05	-.27

* $p \leq .05$

** $p \leq .01$

crucial errors in a research study as in this case. Clearly, this study is destined to take its place in the second class literature as one more proof that handwriting analysis has no validity as a psychodiagnostic technique.

For the reader who wishes to inform himself about serious research on the validity of the psychology of handwriting, I recommend the following studies: Hofsommer & Holdsworth (1963); Hofsommer, Holdsworth & Seifert (1963), Oinonen (1961) and Wallner, (1963, 1965, 1966).

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BOOK REVIEWS

Beck, S.J. *Psychological processes in the schizophrenic adaptation.* New York: Grune & Stratton, 1965. 421 pp.

This is an intriguing continuation of Beck's previous research into the operations of schizophrenia. The raw materials are the clinical states and psychodynamic processes which have been found to describe schizophrenia in the literature on psychopathology. This stockpile of descriptive data was then condensed into 170 items to be used with the Q-sort method for ratings of schizophrenics by psychiatrists, a psychologist, and a director of a school for schizophrenic children. The psychologist used the Rorschach as the material for his ratings. Analysis of the rating intercorrelations yielded schizophrenic patterns with underlying processes involving several levels of manifestation.

The unity of schizophrenia appears in the five underlying psychological processes of defense, intellectual activity, fantasy activity, emotionality, and social adaptation. The heterogeneity of schizophrenia is shown in the six symptom patterns of core, dream, sanctuary, transition, and two childhood clusters. Schizophrenic variability also appears in the differential manifestations of the underlying processes in all the symptom patterns.

This research on schizophrenic behaviors provides a foundation for theory construction about the origins of the symptoms. Schizophrenia is described as an ego disorder with its manifestations depicted within an ego psychology framework. The result is a sophisticated view of schizophrenia as an adaptive survival mechanism. In this reaction the patient reconstructs external reality so that it makes sense to him. The schizophrenic reaction then becomes intelligible in terms of the life experiences of the patient.

Two sections of the book provide the details of the components of schizophrenic operations. The problems of such exposition are openly explored by the author who is quite frank about what his research has been unable to do. A chapter by Nunnally illustrates the methodological difficulties in this type of research. Research on the family situations of the patients was also gathered in this study but will be described in a future publication. Data from schizophrenic children are presented, and, considering the limited knowledge in this field, this section is in itself a substantial contribution. In particular, there is a chapter by Molish which gives the detailed Rorschach patterns of normal, neurotic and schizophrenic children.

One of my reservations about the book is the relatively limited descriptions of the Rorschach

manifestations of the psychological processes in schizophrenia. The other is a regret that this work on schizophrenia is not given a broader background in terms of the other work that has been produced on the delineation of the dimensions of schizophrenia. But these reservations are minor in comparison to my respect for the author's ability to specify basic schizophrenic operations in understandable clinical and dynamic terms.

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Glasscote, Raymond M., Cumming, Elaine, Hammersley, Donald W., Ozarin, Lucy D., & Smith, Lauren H. *The psychiatric emergency: a study of patterns of service.* Washington, D.C., Joint Information Service, American Psychiatric Association, ix and 111 pp, \$2.50.

Both the theorist and practitioner will find this short, well written book valuable. It achieves its purpose of developing information useful to people planning emergency services as components of community health centers. The book reports on (a) a questionnaire directed to 177 psychiatric facilities, (b) intensive study of different types of emergency services, (c) a confrontation conference, and (d) a thoughtful review and discussion of the problem of psychiatric emergencies.

The dictionary definition of an emergency is something that calls for prompt action. This book therefore provides a behavioral answer to what situations call for prompt psychiatric action and how often and by whom this action is taken. Only 20 of the 154 emergency services had formal definitions of a psychiatric emergency and only 69 services had working definitions. The authors' careful report indicates that "... classification as a psychiatric emergency seems largely contingent on one's being conceived of as a social emergency." The book therefore provides illustrations of the concepts recently presented at a more theoretical level by Szasz (1961), Becker (1963), and Scheff (1966).

The authors offer brief chapters summarizing experiences and making suggestions for the future on such emergent behavior as suicide, overt

aggression, and disruptive behavior and such professional behavior as home visits, manpower training, and preventive practices. Throughout, the tone is one of trying to organize the actual experience of humans coping as best they can. There are revealing glimpses of the variations in practice by mental health professionals and the rationalizations given to justify them. There are repeated examples of the interdependence of utilization of a psychiatric resource and the public's knowledge of its existence. Finally, seven programs are described in some detail. Again, the importance of the socio-economic context in which an emergency program works is clearly presented as is the coping of professional people with the limitations and conflicting demands of their social and administrative realities.

A serious attempt is made throughout the book to estimate the prevalence of psychiatric emergencies and resources available to deal with them. While the resulting tables may not please purists, academicians, and other assorted obsessive-compulsives, the cumulative effect is perhaps the best picture available of the situation as it is, not as it theoretically might be. Whether interested in teaching abnormal psychology, engaging in private practice, or in working in hospital and community settings, the psychologist will find this book worth his attention: this is where the field actually is, this is what's happening.

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Singer, Jerome. *Daydreaming: An introduction to the study of inner experience*. New York: Random House, 1966, 234 pp, \$2.25.

Jerome Singer's *Daydreaming* is part of a healthy trend in recent psychological literature. Daydreams are presented as a relatively benign, pleasant human characteristic. Professor Singer is aware of the literature which would lead one to view daydreaming as a primarily maladaptive function. He is able to describe more constructive characteristics of those who daydream, though he does not suggest that daydreaming is a completely positive experience.

Daydreams are divided into two types. The

greater part of daydreaming is described as "an ongoing stream of associations . . . of a spontaneous nature"; a less frequent but often more interesting type are "repeated, self-consistent, and elaborate fantasies which have persisted for years." Daydreams can be experienced as if they were taking place in any of the five senses, or can be purely verbal in nature. Daydreaming develops as the child "miniaturizes" more and more of his play, and finds it inconvenient or impossible to continue to play in active outer behavior. In the adult, daydreaming can serve recreational or creative ends, and often becomes more reality-bound as an individual reaches his thirties or forties.

As noted previously, most attention is paid to the adaptive functions of this process. Those who do not daydream are missing "the best and worst" and so do not live fully. Interestingly, Dr. Singer believes that individuals who have well-developed fantasy lives are likely to make especially clear differentiations between outer and inner reality, rather than confusing the two. It is suggested that schizophrenics have less fantasy life than nonhospitalized populations rather than more, and that training in creative fantasy might well be a positive educational goal for normal children.

The book includes summaries of a series of studies in daydreaming. Some studies were intended to survey the type and extent of daydreaming in different age or nationality groups, and to determine its relationship with other behaviors. Some were attempts to restrict daydreaming through directing subjects to engage in behavior which presumably conflicted with daydreaming. Others contrasted eye movements in day and night dreaming. Although it is apparent that the author finds the studies useful, they are more interesting to the general reader in so far as they lead to further creative thinking on Dr. Singer's part. Thus, it is scientifically sound practice to present data showing that adolescents report that they are the most frequent daydreamers, and this is done. The exposition of the probable reasons for the growth of daydreaming at this stage, its style, its purpose, and its outcome are based on clinical, literary, and personal data, however, and are more relevant to the personal-life theorist or clinician.

A few criticisms of the book are in order. Although Piaget's theories of assimilation and accommodation are clearly described, a further development would have been useful. Vygotsky's writings are not mentioned at all, though he has developed Piaget's work on inner speech in an interesting and important manner. More clinical examples of the styles of daydreaming behavior presented would have been welcome, as Dr. Sing-

er does have skill in presenting provocative case examples. The book can be recommended for its struggle with the problem of the behavioral outcome of fantasy, its emphasis upon developmental stages, and its generally positive yet realistic appraisal of waking dreams.

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Lindzey, Gardner & Hall, Calvin S.
(Eds.) *Theories of personality: Primary sources and research.* New York: Wiley, 1965. \$6.95

This is a book of readings to accompany the text, *Theories of Personality*, written by the same authors. It is rather different from most books of readings because it is much more tightly put together. To support the text the same sequence is followed in which the theories were discussed there. For readers not familiar with the earlier text it may be useful to list the 12 theoretical positions covered. They are: Freud; Jung; a section on Adler, Fromm, Horney and Sullivan; Murray; Lewin; Allport; the organismic positions of Kurt Goldstein, Norman Milgram, Andras Angyal and Maslow; Sheldon's constitutional ideas; factor analytic theories; stimulus response or learning theories; Rogers; and Gardner Murphy. Within each section there is an amazing diversity of papers. Each section is preceded by a discussion. Each paper was carefully selected to represent a topic that is both central and stylistically typical of the theory in question. Each theory is represented by several theoretical papers as well as one or more empirical investigations clearly related to the theoretical position. Many of the papers are of a more recent date, so that they bring the coverage provided in the earlier textbook somewhat up-to-date. The two books together would provide an excellent start for a graduate course in personality theories. The book is beautifully produced and hard bound. Because of this it is not exorbitantly priced, though it is a little higher priced than the average book of readings.

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Thomas, Caroline Bedell, Ross, Donald C., & Freed, Ellen S., *An Index of Rorschach Responses: Studies on the psychological characteristics of medical students I.* Baltimore: The Johns Hopkins Press, 1964, pp. xliii + 741, \$15.00.
An Index of responses to the Group Rorschach Test: Studies on the psychological

characteristics of medical students II. Baltimore: The Johns Hopkins Press, 1965, pp. xlv + 502, \$15.00

Between 1947 and 1957 the authors administered the Rorschach test, individually, to 586 Johns Hopkins medical students. They obtained more than 20,000 responses which are recorded in Volume I of this two-volume set of books. Between 1957 and 1961 they administered the Rorschach, by group method, to an additional 568 medical students. The approximately 20,000 responses obtained from these subjects are recorded in Volume II.

These Rorschach data were gathered as part of a larger study designed to throw light on the psychological, physiological, and genetic factors which may precede the development of hypertension and coronary disease. According to the authors: "The purpose of these two volumes is to create a rich tapestry, woven from more than 40,000 Rorschach responses given by medical students, to serve as a frame of reference for the fuller understanding of the Rorschach protocols of similar individuals or groups . . . The responses are collated with the particular card and area which stimulated them and are presented in standardized form, offering an unparalleled opportunity to the psychological investigator to seek answers to his own questions in regard to the structure and substance of the Rorschach test." (Volume II, p. vii)

To enable them to handle such a large mass of data, the authors relied upon KWIC Indexing, a computer program, to methodically organize and present these responses. KWIC (Keyword-in-Context) Indexing is a digital computer program which retrieves all of the significant words in a phrase or sentence, arranges them alphabetically, and prints them out, together with several words preceding and following the featured word. Using this system, the authors were able to obtain a complete alphabetized listing of all of the significant words from each response to the ten cards along with identifying and classifying information. In addition, the complete Rorschach responses are printed out in another list that is ordered by card and by area (following Beck's system). Finally, a word count is provided, so that the frequency of each key word is automatically ascertained.

As to the possible utility of such a massive tabulation of responses, these two volumes provide normative data which allow for a more objective approach to the evaluation of the significance of Rorschach test responses. The authors hope that other investigators will study different segments of the population for comparison and to determine whether the responses of medical students reflect special medical viewpoints. They suggest that the responses, reproduced here, in many ways resemble those of college students and college graduates in general. Thus, these books provide normative data for young adults of superior intelligence in general and medical students in particular.

It would have been of interest to read typical or modal protocols that could be generated from these data. Unfortunately the authors have not extracted such information nor do they provide answers to any of the other questions (or potential applications) they propose. These two volumes are simply indices of responses. It is of interest, nonetheless, to note some of the questions that might be asked. Inasmuch as blocks of these data were collected at different stages in the students' careers (e.g., the earlier group had already been introduced to clinical medicine) and in written versus oral forms, one could compare responses and note differences, if any, associated with age, professional level, or modality of responding. The frequency tabulation of key words (with surrounding words) might well be of interest in the study of linguistics and its communication aspects, as well as in the analysis of emotional factors in the Rorschach content. With regard again to the frequency of key words, the authors note: "With this analysis as a guide to the Area Index, the actual 'popularity' of popular responses in a given group of subjects may be judged and potential new popular percepts detected. In this way, the P score for the Rorschach test may be brought into relationship with considerations of time, place, and person. In addition, popular descriptive and verbal terms may be identified. On the other hand, the significance of the unusual or 'sick' response may be greatly enhanced if it can be expressed in precise terms as to its degree of uniqueness for the particular group under study" (Volume II, p. xxxiv). The reader will undoubtedly think of other analyses of interest to him. One interesting non-Rorschach informational by-product is the brief description of this population of subjects with regard to sex and race, age, intelligence and marital status.

This reviewer is inclined to agree with Paul V. Lemkau, who wrote the foreword to Volume I, that the authors are to be congratulated for having noted that a method of communication developed for the retrieval of information from the scientific literature could be applied to the tabulation and presentation of Rorschach material. The serious student of the Rorschach should know about this application, these two volumes.

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Smith, M. G. *Stratification in Grenada*. Berkeley, California: University of California Press, 1965, 271pp, \$7.00.

Grenada is an island of 120 square miles located in the Caribbean, 90 miles Northeast of Trinidad. It is a British colony after having been Spanish and French.

Its principal source of income is the produc-

tion of cocoa and nutmeg, and recently tourism.

The population is less than 100,000. Most of these are descendants of imported African slaves, with some traces of Carib Indian blood and of Hindus brought in during the last century.

The author studied social status distinctions in Grenada in great detail, using local directories and tax records, a variety of informants and direct observation of attendance at various functions.

A sample of 403 persons was studied intensively. For this sample, rankings of social status by 19 judges were compared with genealogical information, skin color (judged by 4 different raters), membership in clubs, occupational status, marital status, etc.

The structure of elite cliques was investigated and clique members found to correlate highly with one another in status.

There was a low correlation with occupation. This study raises an interesting question whether the lack of a clear relation between occupation and status in Grenada is a special case, perhaps confined to a small society where upward mobility is quite limited because of the small size of the island, although it is attributed locally to the fixed nature of an individual's status which prevents all but the slowest upward mobility. The other possibility is that on close inspection, taking as much trouble as Smith has, one would find in every society much less agreement between status and occupation than more gross, statistical surveys such as the NORC studies have reported. This is the author's position which he bolsters by pointing out that the usual studies do not consider proprietors, rentiers, financiers, politicians, nobility, nor the young, the disabled, the retired, housewives, soldiers or students.

It would seem that the first class of omissions does not touch on the validity of status determinations based on the occupations for which rankings are available, but only points up gaps in that system. The second group of omissions can probably be given ranks derived from those of close relatives.

Another interesting, related suggestion made by the author is that personal qualities determine social status and that these also determine occupational rank where there is room for variation. This is not spelled out further, but this reviewer feels that there may be merit in this idea, and that an individual's status may be a joint function of his parents' status (as a starting value) and his own abilities, personality traits and physical appearance, plus those of his wife (weighted perhaps somewhat less and differently in different levels), and those of his children (weighted much less), plus a reputation factor, based on his past performance as solidified in memberships and

various other "visible" symbols of status, which serves to attenuate fluctuations.

In Grenada the largest break in the social status ranking is between the white or light colored elite, which is largely Protestant and of British culture, and the darker folk, who are Roman Catholic and still influenced by French and Creole lore. Since first recorded in 1865, 70% of all births are extra-marital. Of the elite males, 43% had bastards from darker concubines. A few of the lighter-skinned octoroons or quadroons may eventually be allowed to join the upper group, but there is some migration of the more ambitious and able mulattoes to nearby Barbados or Trinidad, while a few whites enter from time to time from Britain.

This is an interesting study because of its detailed findings as well as because of some of the techniques employed.

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Kausler, Donald H. (Ed.) *Readings in Verbal Learning; Contemporary Theory and Research*. New York: John Wiley & Sons, 1966, xii, 578 pp., \$7.95.

Although it may seem somewhat incongruous that a volume on verbal learning be reviewed for the *Journal of Projective Techniques and Personality Assessment*, there is historical precedent as well as substantive utility for such an enterprise. Consider, for example, the use to which Jung put free association in eliciting symptom complexes. In more modern times, and on a sounder empirical basis, learning theory has produced the concept of associative clustering; i.e., that terms elicited in verbal learning experiments tend to cluster together in recall of the materials learned and that this clustering can be experimentally studied. The parallels between Jungian free association and associative clustering seem obvious. What is not so obvious, however, is that other verbal learning processes such as mediation may also have considerable relevance for an understanding of the way in which language and learning processes interact with social and personality factors.

There is no intention of implying that the present work has direct relevance to the study of social and personality processes. What I am saying, on the other hand, is that many aspects of classical learning theory do have considerable relevance for an understanding of the manner in which language and learning may determine, in a Whorfian sense, the experiential matrix which

forms the basis for our interactional approach to the environment.

Turning now to the work proper, Professor Kausler has provided coverage of the bulk of the major research and theoretical efforts in verbal learning over the past fifteen years. The volume is organized around three major areas: 1) acquisition; 2) transfer; and 3) retention. Within this organizational framework, introductions are provided for each chapter and an effort is made to distill for the reader the most salient developments within the particular field covered by a given chapter. An initial overview provides a perspective for the whole series of readings and sets a context within which the author operates regarding his impressions and interpretations of the materials selected for inclusion. His explicit embrace of the functionalist tradition, for example, tells us that we will be largely concerned with studies of, as he states, "learning as a function of . . .".

On balance, the author has done a thoughtful job of selection in regard to the articles reviewed and the book should be a very useful basic or supplementary text in courses in verbal learning. The materials introducing each chapter should be particularly helpful to students in helping them begin to integrate the implications of the research studies into their own apperceptive mass.

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Arnheim, Rudolf, *Toward a Psychology of Art*, University of California Press, Berkeley & Los Angeles, 1966, 369 pp., \$10.00.

There are very few writers who have devoted as much interest in the wedding of Art and Psychology and even fewer psychologists who show the breadth and depth of knowledge and interest in Art as does Rudolph Arnheim. For more than a quarter of a century he has devoted himself to the study and teaching of the many factors in Psychology which hold an important place in the field of Art. This book is a compilation of some of his writings, dating from 1947, all devoted to expounding the viewpoint that "art, as any other activity of the mind, is subject to psychology, accessible to understanding, and needed for any comprehensive survey of mental functioning."

Dr. Arnheim is concerned not only with the experimental aspects of psychology but also the subjective interpretations to be made. He believes that every area of general psychology calls for

application of art. He reflects on the factors of perception, motivation, and goes a step further in considering the place of art in attitudes and personality studies. Even social psychology has a place in his study of art and this reviewer can find little to refute him when one considers the many television advertisements.

The book is compiled not in the sense of a survey of all of art or all of psychology but rather as a reflection of Arnheim's thinking, interests, and personal biases. The writings, or as he calls them, essays, are a systematic, orderly arrangement of his publications in psychological, aesthetics, and art criticism journals. A few find publication here for the first time.

Dr. Arnheim's thinking reflects his adherence to the school of Gestalt Psychology. He thinks of art not as an arrangement of lines and color but as an orderly arrangement which has meaning only as one is able and willing to gain a total viewpoint. He states that "The organized pattern of shapes, and color, which in any work of art, is the main carrier of the meaning and expression conveyed to the spectator, . . ." He offers experimental evidence to support his statements, including studies of Woodworth and Schlosberg, Allport and Vernon, Lipps, Kohler, and Koffka. In addition, he makes the point that Rorschach interpretations are strong evidence of his beliefs.

The study of symbols plays an important part in his reflections and writings. Here he draws upon the writings of Carl Jung for substantiation of his ideas, accepting some of Jung's concepts and refuting others.

One need not be surprised that the subject of emotion and feelings should gain more than passing interest from Arnheim. He points out that emotion and feeling frequently are used "to describe the production and reception of art. Art is said to be made and sought because it gives pleasure; and pleasure is described as an emotion." The author, however, cautions his readers to go beyond emotion and feeling, believing that perception is the key to art. What people see rather than how they feel is far more important to Arnheim.

Finally, the writer takes to task the psychiatric model, which he terms a bias for stating that art is a substitute for living; that art is considered a neurotic escape from life. "Genuine artistic activity is neither a substitute nor an escape, but one of the most direct and courageous ways of dealing with the problems of life."

That Arnheim has a deep appreciation for art, a sensitivity for expression, a highly developed ability to use words for clarity of meaning are very obvious to the reader. One is impressed with his knowledge of the subject, his ability to draw from both art and psychology that which is needed to emphasize the points he makes. Probably

someone deeply immersed in the field of art might take issue with some of the points he makes but for one who has a non-professional's appreciation, the author presents much that is to the point. Certainly, one gets a richer appreciation of art and a further desire to examine the relationships between that which is studied and used in psychology and the world of art.

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Cattell, Raymond B. *The scientific analysis of personality.* Chicago: Aldine, 1966, 399 pp., \$7.95.

Professor Cattell has provided us, as tends to be his custom, with an engaging and provocative analysis of his approach to personality assessment. While his opinions often engender a great deal of heated discussion and, often, violent opposition, it is obvious that he has important things to say and that the less than enthusiastic reception he has experienced among some clinicians does a disservice not only to his work but also to the advancement of the science of personality assessment. I think Cattell correct, and perceptive, when he notes that a significant portion of the opposition arises from a kind of trade-unionism in which more esoteric skills, such as projective interpretation of personality materials, are zealously guarded by their possessors. It has become evident that the trend to more objective assessment techniques, as opposed to the traditional projective assessment techniques, will continue in an accelerated manner and that Cattell's work will come to be recognized for the pioneering effort it has been.

With respect to the present work, Cattell offers an excellent review of the brass-instrument approach to personality assessment exemplified by the Wundtian uni-variate experimental methods applied to personality factors as opposed to the Galtonian multi-variate approach espoused by Cattell. He argues, cogently, that the multi-variate approach can tease out, with sufficient analytical subtlety, connections in behavior. As Cattell says, "In its break from the classical univariate experiment, Galton's was a more bold and imaginative step in studying human psychology than Wundt's, and it has led to tremendous developments in mathematical statistical use of the electronic computer in analyzing human behavior. Wundt, in clinging more closely to established sciences, may have been oriented to giving to the new science of psychology more standing, whereas Galton had the sublime indifference to appear-

ances which one sees in a fox terrier with his nose in a rabbit burrow." Cattell makes the further point that the multi-variate method attempts, by its subtle scientific analyses, to tease out factors from behavioral data that would otherwise be impossible to achieve since the human organism cannot, in most cases, be subjected to the manipulative control of the uni-variate method.

Proceeding from this point of view, Cattell discusses his methods of analyzing personality and succinctly presents the main *corpus* of his factor-analytic research studies. Within this context, he also devotes considerable attention to the fundamental source traits of excitability and dominance as well as ego and super-ego functions. His discussion of his trait factors is admirable, presenting a lucid and concise rationale for the importance of isolating such traits together with an excellent discussion of the implications and ramifications inherent in each source trait. The isolation of such source traits has eventuated, *inter alia*, in Cattell's 16 Personality Factor Scale, and instrument whose parallels to the MMPT provide an interesting example of the different routes by which a convergence toward more objective methods of personality assessment seems to have been occurring on the American clinical psychological scene.

Let the reader consider the review too laudatory, let me note some annoyances which detract somewhat from the value of the work. There is, of course, a considerable body of personality research analogous to that of Cattell but he tends, on the average, to ignore this or to give it short shrift. Further, he does not provide the reader with adequate citations to research studies, including his own. For the most part, citations are to books and not to research articles which makes it difficult to track down studies in which one may be interested.

Another, and more vexing problem is the descriptive language which Cattell uses for his traits and trait system. While his attempt to avoid using terms which have other connotative meanings is one step toward clarifying the content which he intends for a particular trait, it also can be a trying experience for the reader or researcher. In point of fact, Cattell has found it necessary to append a glossary so that the reader can translate the terminology employed. It seems reasonable to infer that the communication barrier imposed by the necessity for translation may be one factor impeding the flow of Cattell's work into the mainstream of research on personality assessment.

On balance, however, this work is stimulating and rewarding. A careful reading of its contents provides many provocative ideas, both for research and for intriguing analogies with other

findings in the clinical literature relating to personality development and its manifestations in normal and pathological states.

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Leland, Henry, & Smith, Daniel, E.,
Play Therapy With Mentally Subnormal Children, Grune & Stratton, New York:
1965, pp. 240, \$7.95.

During the past fifteen years there has been a growing interest in the care and welfare of mentally retarded children. A partial reason for this was the result of the banding together of the parents of these children to form one of the most vocal organizations in America. They requested and often demanded greater service for their children. Their efforts gained added impetus through the special interest of President John F. Kennedy. While members of the various professions had devoted themselves for many years to research regarding diagnosis and treatment, all this seemed to spur them on with added vigor. The combined urging of the parents, the presidential messages to Congress, and the increased professional activity in the field of mental retardation, all did much to secure allocations of funds to provide for research studies and the development of diagnostic and counseling centers on both Federal and State levels.

Out of such research studies and therapeutic programs came activities such as discussed in the book under consideration. Dr. Leland and Mr. Smith, based upon their work at the Parsons State Hospital and Training Center, set as their task a description of one aspect of the problem in working with mentally sub-normal children. They had no desire to cover either the general question of play therapy nor even that devoted to all emotionally disturbed children. Their purpose was to explore one limited area, namely, play therapy with a group of children which may be small in number but for which comparatively little has been done to date. They were interested in the adjustment of these children to a much wider world than the walls of a hospital ward. They desired to find ways to provide changes in behavior which would establish close interpersonal relationships between the mentally subnormal children and the people with whom they came in contact. To Leland and Smith, play therapy provided the avenue by which this could be possible.

The authors devote a considerable section of the book to the theoretical considerations of play

therapy with emphasis on motivational factors such as rewards and punishment, conditioning, and the processes which they describe as "forcing the child to think." As the authors see it, four different types of play therapy are needed with the type of children with whom they are working. These they list as the unstructured materials with an unstructured therapeutic approach; unstructured materials with a structured therapeutic approach; structured materials with an unstructured therapeutic approach; and structured materials in a structured therapeutic approach. These are established as premises that must be explored and this is covered in the second part of their book. Part three covers their interpretations and evaluations based upon the use of these four types of play therapy. Included in this last section of the book are comparisons between the use of play therapy and other treatment methods, and the place of this technique in the total service activity with mentally subnormal children. The authors recognize that play therapy is but one method to be considered and the many limitations which may be present to nullify or retard the effectiveness of the treatment method they propose.

Finally, Leland and Smith devote themselves to a consideration of the therapist, and the particular training and experience needed to be effective

in this aspect of therapy. They see play therapy as being a fruitful area for research. Their plea is for researchers, therapists, and educators to have an open mind as to the effectiveness of the method covered in this book and ask that it be tried and used by all professional disciplines as one more weapon available in the fight to adapt or modify the behavior of one sampling of our population.

Drawing upon the concept of mental retardation as defined by the American Association on Mental Deficiency which stresses the impairment of adaptive behavior, the authors have given their formulation of one method for providing an effective behavior modification and developmental approach. Their method may not be the final answer nor may their book be the most clearly expressed explanation of play therapy with mentally subnormal children, but there is enough in their hypothesis to warrant its trial and sufficient material in the book to warrant its reading by all professionals who feel that they need to know more about these children. That means most of us.

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The following ad shows the correct schedule of workshop dates. Due to a printing error the April issue carried incorrect dates.

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On the Attention - Demand Value of Rorschach Stimuli

PAUL BAKAN and RICHARD A. BROWN
Michigan State University

Summary: The attention-demand value of the Rorschach stimuli was investigated by measuring free looking time elicited by each card. Reports of content were not given by Ss. There were significant differences between cards in amount of looking which they elicited. This was closely related to judged complexity of the cards ($r = .78$) and response productivity of the cards under normal administration of the Rorschach test ($r = .72$). A comparison of looking times under two instructions, non-defensive and defensive, showed that the instructional variable tended to produce greater differences in looking time for some cards than for others. Cards low in complexity showed relatively longer looking times under the defensive conditions.

The attention-demand value of a visual stimulus may be reflected by its capacity to elicit looking behavior. Visual stimuli vary in this capacity. A number of studies have centered on the study of stimulus determinants of free looking time. It has been shown that the time spent looking at visual stimuli is a function of stimulus variables, such as complexity and novelty, and also of interactions between personality and stimulus variables (Bakan and Leckart, 1966; Berlyne, 1958; Leckart and Bakan, 1965).

In the present investigation a measure of free looking time was used to study the attention-demand value of the Rorschach stimuli. Since responses to the Rorschach cards are a function of both stimulus and subject variables, there has been considerable interest in the Rorschach cards as stimuli (Baughman, 1958; Baughman, 1959; Rabin, 1959). Differences between Rorschach stimuli in looking time elicited were studied as a function of stimulus complexity under two sets of instructions, defensive and non-defensive.

It was hypothesized that variations in complexity of the Rorschach stimuli are related to the amount of looking time elicited by them. The relationship between these variables and stimulus productivity under the normal procedure of administering the Rorschach test was also investigated.

METHOD

Subjects

A sample of 100 Ss was divided into

four groups of 25 as follows: Male-Defensive, Male-Non-Defensive, Female-Defensive and Female-Non-Defensive. All Ss were volunteers from an introductory psychology course who had never seen the Rorschach cards before the experiment.

Procedure

S was seated before a rectangular screen placed on a desk. Rorschach cards were presented one at a time in the standard order, through a slot in the screen. S looked at the card as long as he wished and then put it back in the slot; E then passed the next card through the slot, and so on until all ten cards had been presented. Looking time for each card was recorded by E with a stopwatch.

Instructions

Any given S served only in one instructional condition, either non-defensive or defensive. The non-defensive instructions follow:

"The Rorschach cards are a series of ink-blot that are frequently used by psychologists. *This experiment is concerned with finding out how interesting these ink-blot are to college students.* You are requested to look at a number of Rorschach cards. Look at each card as long as it interests you, then push it back through the screen. Another card will then be presented."

The defensive instructions were the same except that the italicized sentence above was replaced by the following sentence:

"This experiment is concerned with finding out how interest in various cards reveals your inner conflicts and hidden personality characteristics."

Complexity ratings

The literature on looking time has a number of reports on the relationship between stimulus complexity and looking time. In order to study this relationship with the Rorschach stimuli, a scaling of the complexity of the stimuli was carried out. Each of fifteen judges (under-

for card X. Though Ss in the defensive instruction group tended to look at the cards longer than Ss in the non-defensive group, this difference was not statistically significant ($F_{1/96} = 1.18$). There was no significant difference in looking time between males and females ($F_{1/96} = 1.76$). The mean looking time for all cards combined was 22.38 seconds for males and 20.87 seconds for females.

The interaction between cards and instructions approaches significance at the .05 level ($F_{9/864} = 1.77$ with 1.88 required for significance at .05 level). This

Table 1—Mean Looking Time (secs.)

Card	Non-defensive	Defensive	Combined
I	11.96	14.42	13.19
II	15.80	18.36	17.08
III	17.00	19.34	18.17
IV	15.76	21.60	18.68
V	13.16	18.54	15.85
VI	21.14	23.76	22.45
VII	17.16	24.48	20.82
VIII	27.84	33.46	30.65
IX	23.48	29.88	26.68
X	30.18	35.24	32.71

graduates) was asked to place each Rorschach card in one of five categories ranging from least complex to most complex. On the basis of the average of these placements the cards were scored for complexity on a five point scale.

RESULTS

Looking time

The mean looking time for each of the Rorschach cards under non-defensive and defensive instructions is presented in Table 1.

The looking time data was treated by an analysis of variance. A logarithmic transformation was used to reduce skewness and stabilize the variance. It was found that the difference in looking time between cards was significant at the .001 level ($F_{9/864} = 50.05$). This is apparent in Table 1 where it can be seen that the range in mean looking time goes from 13.19 seconds for card I to 32.71 seconds

suggests that the difference in instructions has a greater effect on looking time for some cards than for others.

Complexity and looking time

The mean complexity rating and the standard deviation, based on a five-point scale is presented in Table 2 for each Rorschach card.

In order to test the hypothesis that there is a relationship between looking time and complexity, a correlation was computed between the mean complexity rating and the mean looking time (combined for both instruction groups) for the Rorschach cards. The correlation coefficient is .78, significant at the .01 level.

Productivity and looking time

It has been shown that the Rorschach cards differ considerably in the number of responses they elicit under normal

Table 2—Means and Standard Deviations of Complexity Ratings of Rorschach Cards

Card	Rating	S.D.	Card	Rating	S.D.
I	2.67	0.72	VI	2.33	0.72
II	3.00	0.76	VII	1.87	1.06
III	3.13	0.41	VIII	4.13	0.51
IV	2.47	0.91	IX	4.13	0.51
V	1.13	0.59	X	4.80	0.78

conditions of test administration. Beck, Rabin, Thiesen, Molish, & Thetford (1950) have presented normative data on the mean number of responses elicited by each Rorschach card. The present analysis was carried out in order to determine the extent of relationship between free looking time elicited by each card, and number of responses elicited in normal Rorschach test administration. The correlation between mean looking time (secs.) and mean number of responses (productivity) is .72, significant at the .05 level.

The significant relationships between looking time and both complexity and productivity, suggested a relationship between complexity and productivity. The correlation between complexity as measured in this study and card productivity as measured by Beck et. al. (1950) is .70, significant at the .05 level.

The set of interrelationships between looking time, complexity, and productivity is summarized in Table 3.

Card by instruction interaction

The interaction between the type of instruction given and the individual Rorschach cards approaches significance at the 5% level. The difference in looking time between non-defensive and defen-

sive instructions can be computed for each card from the data of Table 1. When the difference in looking time between the defensive instructions and the non-defensive instructions is expressed as a percentage of the time spent looking under non-defensive instructions the ordering of the cards from smallest to largest difference is VI, III, II, X, VIII, I, IX, IV, V, and VII.

A correlation between this measure of discrepancy in looking times as a function of instructions, and rated complexity of the cards is -.55, significant at the .10 level. There appears to be a tendency for the less complex pictures to elicit a relatively longer looking time under the defensive instructions.

DISCUSSION

It is quite clear that in a situation where *S* looks at each Rorschach card for as long as it interests him, there are wide differences among the cards in the looking time elicited. The experimental situation used here is unlike that of the Rorschach test, where *Ss* not only look, but report what they see. Despite the difference in procedures there is a significant correlation between simple free looking time and productivity, the number of things reported in the card under

Table 3—Intercorrelations Between Looking Time, Complexity, and Productivity of Rorschach Cards

	Looking Time	Complexity	Productivity
Looking time	—	.78 ^{***}	.72 ^{**}
Complexity		—	.70 ^{**}
Productivity			—

*** *p* .01

** *p* .05

normal Rorschach test conditions. Both these measures, looking time and response productivity, are related to a measure of subjective stimulus complexity. Rorschach cards rated high in complexity tend to elicit longer looking in the present experimental situation, and more responses under standard Rorschach conditions. This is in line with the hypothesized relationship between complexity and attention-demand value of stimuli.

The instructional variable, designed to manipulate defensiveness of Ss, appears to exert a differential effect on the cards. For some cards there were considerably longer looking times with the defensive instructions. Looking times under defensive instructions are relatively longer for cards rated low in complexity. It may be that the defensive instructions increase the attention-demand value of the less complex cards by embedding them in a personally relevant context.

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Ego Impairment and Ego Adaptation in Schizophrenia

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Summary: Recent clinical theory and evidence from research converge in describing schizophrenia as a pattern of cognitive defect. In this article the defect was described as an impairment in those psychological processes that integrate and organize mental functioning into a holistic pattern at a given moment, give it continuity over time, and inter-relate the unified complex to external phenomena. Psychological test material (the Rorschachs of two people) was examined to elicit cognitive or perceptual patterns in contradistinction to analyses of conflicts, defenses, or interpersonal vectors. This structural emphasis brings into perspective the fluctuation of mental organization in schizophrenics and relates the fluctuation to degree of impairment, degree of strain imposed by the environment, and capacity for adaptive compensation.

One of the most stable findings in research in psychopathology is that schizophrenics demonstrate impaired perception, learning, and memory (Buss and Lang, 1965). However, these findings have generated confusion rather than clarification about the nature of schizophrenia because under varying conditions the observed impairments can be manipulated to greater strength or partially or completely eradicated. Similarly, in clinical observations, defects may be clearly observed during acute phases of the schizophrenic disturbance which are partly or totally absent during latency or remission stages. What appears to be called for is a theoretical approach that would adequately explain (a) the accumulating evidence of these research findings regarding schizophrenia, (b) fluctuations of degree of severity of the schizophrenic illness as a complex function, (c) shifting schizophrenic conditions that bring out or obliterate "symptoms", and (d) the variety of patterning or sub-categories among the schizophrenics.

In this paper, an attempt is made to outline the psychological defect approach presented by some clinical theorists and point out how research evidence converges at many points. The psychological defect theory is one of cognitive or perceptual organization. That is, the ap-

proach is not one of sensory or motor defect, or arousal or attention difficulties nor is it one of dynamics of intra- or inter-personal forces. Rather, its concentration is on hierarchical organization and the integration and coordination of psychological processes. The method of presenting this approach is primarily through the analyses of two Rorschach records of patients who are believed to be schizophrenic (partly on the basis of test data). In the process of making these analyses, the patients' responses are examined through the "lens" of the cognitive approach being described.

This is one step in formulating the "structural" approach in a manner that may produce comprehensive research. The term structure is used here in the sense that Rapaport (1951) used it to distinguish energy-dynamic concepts from those of structure. The former refer to drives, drive conflicts, and drive vicissitudes; the latter refers to thresholds of discharge, control systems, and integrative patternings.

DesLauriers (1962) and Freeman, Cameron, and McGhie (1958) presented theoretical formulations describing schizophrenia as a defect or impairment in ego integration. While the two theoretical systems are not identical there is a remarkable convergence in describing the ego defect as a lack of optimal organization of the individual's psychological processes. Specifically, the defect is presumed to relate to the lack of integration of processes that develop as the organism evolves a pattern of functioning as a unitary system. That is, there

¹ Although the author is responsible for the present formulation, he is indebted to Drs. Nick J. Colarelli, Donald B. Leventhal, and Saul M. Siegal who helped develop the ideas presented in this paper in seminars at the Topeka State Hospital in 1960-1964. We are all indebted to Austin M. Des Lauriers for his inspiration and original thinking.

is a progressively hierarchical organization and integration of processes as mental functioning develops and matures. These processes encompass a greater and greater range until they operate at the level of integrating a given organism's psychological system into a unitary adaptive system. In some individuals there presumably is maldevelopment around this crucial level of integration. Where this maldevelopment occurs, the individual must develop some form of functioning as a totality. The pattern that emerges, however, lacks the synchrony or tightly woven hierarchical organization that characterizes stronger ego formation. In the impaired system the individual can develop adaptive or compensatory behavior. At the same time, to varying degrees, he lives under the threat of these substitute measures faltering and resulting in discoordination. The varieties of impairment that are possible and the varieties of adaptive patterns interacting with such impairment make it seem as though there are many disorders rather than one.

In the context of this theoretical view of the schizophrenic defect, it is important to note that research evidence appears to show some convergence in describing schizophrenic phenomena. Lang and Buss (1965) in a comprehensive review of recent research in this area take some pains to point out that specific theories of learning difficulty, anxiety interference, drive limitation, arousal impairment, reactivity to social censure, or regressive phenomena are not supported by a composite picture of current findings. Instead, the data support phenomena which appear to be related to what may be called higher organizational processes although the review article avoids such terminology. To quote Lang and Buss (1965), "Schizophrenics have difficulty in focusing on relevant stimuli and excluding irrelevant stimuli, in maintaining a set over time, in shifting a set when it is necessary, in instructing themselves and in pacing themselves, and generally in performing efficiently..."

From the point of view that schizo-

phrenia is an impairment in functions of higher coordination, it is possible to formulate the theory that fluctuations in adequacy of functioning are due to an interplay between impairment, environmental support (or stress), and adaptive or compensatory capacities in the psychological processes. This kind of formulation not only allows for shifting levels of functioning depending on momentary changes in environmental conditions but also makes it possible to encompass variations in type of schizophrenic conditions. Pre-schizophrenia (or more accurately, non-acute schizophrenia) can be described as an adaptive state where the individual suffers ego impairment but maintains himself in some form of organization and reality relationship through adaptive resources. The nature and resiliency of adaptive forces and the nature of external stress can influence the stability or vulnerability of the system's organization. In a "balanced" system of schizophrenia there is much greater dependence on environmental support for the kind of guidance and stabilization that in non-schizophrenics is the function of ego organization itself. In non-schizophrenic conditions, the ego does not passively depend on what the environment emits but actively scans, scrutinizes, and forces stimuli and perceptual and cognitive phenomena into organized patterns which are harmonious to environmental data. That is, environmental data are used to support and stabilize cognitive patternings and cognitive patternings are used to support perceptual phenomena.

The remainder of the present article is devoted to case illustrations of these processes. The point of view presented is that of "slicing" the test data at the level required to observe the kind of cognitive functioning that can be categorized as the ego processes of organization, coordination, and reality testing. This method is used to focus the reader on the processes involved in the ego impairment approach rather than to suggest that such data are the only useful information that can be extracted. For example, in the first case (below), on

Rorschach card II, the patient described men who had faces like birds and bodies like bears and stated that these figures reminded him of a Woody Woodpecker cartoon. While valid inferences may well be made regarding the patient's difficulties in relationship with people or his specific difficulties with men, the focus in this article is on the cognitive processes involved; that is, the focus is on the fact that the patient did not respond with a better integration of percept components but "tacked" discrete elements together. When the data is viewed this way, hypotheses may be drawn about difficulties in processes that interrelate elements of stimulus input and processes that coordinate or relate behavior to situational demands. This form of analysis, then, brings the structural or organizational processes into focus as elements in understanding pathology.

In addition to restricting inferences to factors of defect and adaptation and the interplay between these factors, the case material is also restricted to Rorschach data. While the patients whose data are presented were given a relatively full battery of tests, only an illustration of the structural approach by the use of the data from one test is feasible here. However, the broad range of stimulus ambiguity and task clarity represented in the usual test battery yields a range of behavioral samples important to an understanding of the range and limitations of

ego impairment and adaptive capacity.

The two cases chosen represent rather different interactions of impairment and adaptation. The first case illustrates a degree of equilibrium or stable organized functioning. However, this stability is achieved through the maintenance of a rigid, constricted style of behavior aimed at avoiding strain. In this pattern there is a danger of sudden and perhaps chaotic disruption if the system cannot encompass stress imposed on it. In contrast, in the second case, there already is a disruption in equilibrium and the system is struggling to grasp some form of organization or stability.

FIRST CASE

On guard duty one night a 19 year-old serviceman shot and killed his partner on duty. There had apparently been no quarrel or argument. The serviceman could offer no explanation. His past service record was unremarkable. The serviceman was described as having little affect; he was uninvolved yet organized. The preparation for court martial included a psychological examination and the resulting formulation of his personality and the hypothesized explanation offered for his behavior rested on the diagnosis of schizophrenia (impaired ego organization). What follows is the Rorschach and an analysis of it used in reaching this conclusion.

RORSCHACH PROTOCOL

Free Responding

- I. 10" 1. Well it could look like a face.
2. Part of it looks like a bat.
60" bat. All I can see in it.

- II. 7" 1. This one looks like a—two red headed funny shaped men with their left hand on each other and feet. Dancing or some-

Inquiry

1. Of some animal. (Q) Something like a wildcat; no wolf; eyes slanted, like a wolf but mouth isn't full. (Q) Something between and no forehead. Appears fierce. (Q) Eyes. W S F+ Ad (Fab)
2. Wings spread out like flying - claws; head like a bat. (upper 1/2 of W) dr FM+ A

1. It's a cartoon of a—in funny books—tall head—looks like dancing or fixing to fight. Hands and feet close together. Hands connected; Bird-like face. (Q) Not men—would have to be funny look-

thing. Also looks like they're boxing.

65" All I can see in it.

ing men. Face like a bird. Bodies of a bear. Like Woody Woodpecker or "Henry Hawk" cartoon. W M+ (H) (P) (a) Also looks like a rocket. (S) something you see in science fiction movies—front-wide wings & exhaust. (Right now) taking off - red is exhaust fumes D5 + D3 S, FM+ FC, obj.

III. 14" 1. This looks like two people-monkeys or something holding something in their hands.

2. This way it reminds me of some comical face.

65" That's all.

1. Dark—don't know what's in hands. (People or monkeys) Monkeys (Q) The way the heads are shaped. (Q) Back sticking out—facing each other. Right arm missing. W F + A (P)

2. Ears missing. Could be cartoon character. Andy Panda. Mouth and nose missing. This doesn't look like mouth but in right place. (Q) Could look like comic character - also looks sad-faced or something. Could be sad - eyes droop. D 5, 7, dr F- (H) (fab)

IV. 20" 1. This looks like some kind of bird—also looks like a bug.

2. Also looks like the—under a kangaroo. Looking at a kangaroo from under the bottom—tail—big feet—

70" That's all.

1. Wings or feet. Looks a little like a turtle too; face of something; bug. (Q) Wings of bird only. . . (Q) Turtle legs - this could be turtle legs too but facing wrong way - and if different shaped head - skull here. W, F, A Fab cont.

2. Tall - feet - arms. Except Kangaroo's arms don't stick out like that. Only chin. W F- A

V. 2" 1. This looks like a bat.

2. Or a butterfly.

45" That's all I see

1. Antenna. (Q) Flying - anything. It's black - the way the feet come out. W FM+ A

2. Butterfly-reversed this antenna-wings - wings-flying too. W FC' + A P

VI. 20" 1. This reminds me after a kill and you take skin & hang it up—pelt

60" All I see in this

1. Hanging on something. (Q) Outside. Inside would be smoother. This more like hair. (Q) Fuzziness - dull W cF + A Obj P

VII. 10" 1. Looks like someone—fat person—with two heads & middle part of body is missing.

2. This way looks like a cat. with top of forehead & mouth & nose missing; in other words a cat with no face.

75"

1. Could be animals more likely - wide head. (Q) Animals don't have two heads. Siamese - connected together; inside missing. (Q) Arms; legs. W F- H O-

2. (Q) Pleasant or unpleasant. (Q) Odd - not unpleasant. W F- Ad O-

VIII. 10" 1. This looks like two pink

1. Tree or branch. (Panthers pink). No,

panthers or something. Climbing up a tree. Each coming up on opposite sides.

2. This way it looks like a face with a few parts missing. Face of an animal - to be exact, the face of a tiger.

90" All I see

IX. 8" 1. All I see in it is the
60" shape of a wildcat's face.

X. 15" 1. This looks like the top part of this is two monkeys with a bar between them.
2. Bottom of it looks like a rabbit's face.
3. Another part—see two yellow animals—got faces like a dog & bodies like a . . . some bodies.
4. This places looks like a spider—blue splotch.
5. Another thing here—looks like two sea horses.
6. Another thing looks like it's jumping from one place to another.
7. Another place looks like a wishbone. All I see in
170" here.

black. Could be another animal. Could be a squirrel with a tail. D1 D FM+A P
2. Eyes, jaws, mouth, ears are a little different. (Q) Fierce, I'd say. (Q) Tigers look fierce. W F-Ad O-

1. No forehead. No eyes. Bottom of face is kinda square. No mouth. Fierce; unpleasant. W F- Ad Fab O-

1. Not facing—looks like backs to it - arms reaching up to it. D11 D FM + A
2. Ears, nose, eyes. Don't know about this part. D10 D F+ Ad P
3. Big eyes - not dog's bodies - too small. (Q) Big. . D2 D F+ A
4. Lots of legs. D1 D F+ A P
5. Nose is a little short. Something in back of head shouldn't be here. D9 D F+ A
6. Cricket - now frog - no face - can't see face. D6 D FM+ A
7. The way it comes out. D3 D F+ A C

The Main Features Of Test Behavior In Relation to Structural Concepts

There are several behavioral features that can be described to gain a perspective of the ego functioning of this person. The patient's behavior has a segmental quality; his behavior appears to be made up of sequences comprehensible as responses to discrete stimuli. The element of deficiency is that of overall coordination encompassing broader integrations of space and time. It is this lack of harmonious integration that raises questions about the continuity of the organism as a psychological unity. In addition we fail to discern the use of self or individuality as an ingredient or baseline for experience. In both of these ways it appears that responses are be-

ing made to stimuli, but the total organism is not quite "with it" as a natural participant. In the following paragraphs we shall discuss specific features of the patient's record revealing characteristic aspects of this phenomena.

The patient's productions show a pattern of mechanical reacting. He frequently appears to react, "off the top of his head", or to react with a variety of possibilities but without noticeable effort to screen or to evaluate or to impose judgment as to what is more or less relevant or important among the possibilities entertained. One idea frequently appears to prompt the next as though the whole is a chain of connections with no overall continuity. In this serial pattern various conceptual categories are encountered or triggered by concrete,

immediate relationships, but these are lost as new categories and new associations emerge. The patient exhausts the conceptual possibilities without selectivity. This flow of ideas is accompanied by phenomena of apparent lack of indication of discrimination or judgment between clear, easily integrated responses and those that lack such qualities. On Card III a face is suggested by the positioning of the eyes so the percept is a face albeit comical. The patient then reviews the various missing or non-missing parts all within this framework but the review seems to have no evaluative or judgmental functions. In some instances there are efforts to improve initial responses but it is done through efforts at rationalizing contradictions between what has already been produced rather than evaluating how one got there and re-integrating the percept.

Together with the manner in which the patient responds and the quality of that which he produces, the content of what the patient attends to can frequently be described as something less than the totality of the situation that is imposed upon him. Just as the unit of behavior has been described as narrow, so the unit of attention focus frequently is only a segment or sub-segment of the integral stimulus imposed upon the patient. To describe a Rorschach concept as having a body of a human and a face of an animal (Card II) may represent an arbitrary integration, but it also indicates that at a basic level the patient begins with and sticks to perceptual organizational units that are merely parts of or less than whole considerations of units in reality. Perceptual processes remain arbitrarily fixed on "sub-units" instead of larger emerging units of focus that may correspond to more critical forces in one's environment.

The test record is also impressive in the clarity of a pattern of differential functioning between situations of clear, definitive conditions and those of greater ambiguity or complexity. In those portions of the Rorschach where the blot stimuli are relatively sharp, clear, and discrete, or have more "card pull",

more adequate responses are elicited than in those areas where there is greater ambiguity or complexity. We notice, for example, that on Card X, the patient gave several discrete responses to various "usual details" and all of them are of an acceptable form level and integration. He gives almost all of the test's "populars" but gives relatively disturbed and arbitrary responses on Cards which do not lend themselves to easy organization. This kind of differential functioning illustrates a central element of the ego defect theory of schizophrenia; our clinical data parallels research literature that shows the differential functioning between impairment under some conditions but reduced impairment under conditions of greater clarity of stimulus, or support and guidance.

In the structural defect theory, it is not the basic ego processes such as memory or perception or cognition that are deficient, but the defect is in those processes that coordinate sub-processes. Where there is less strain on these coordinating or inter-relating processes, the individual with an ego impairment functions relatively well, sometimes so well that he appears as if he did not have such an impairment. This phenomena points toward adaptive capacities in ego impaired individuals. Environmental or stimulus ambiguity and complexity strain just those ego factors that are weak such as the processes of "zeroing in" on the nature of the stimuli, determining a proper course of action, and judgment about suitability of one's response. The situation is quite the reverse in "over-learned" contexts or those where the environment gives relatively more information. These stimulus conditions give signals about expected behavior and pose less of a strain on ego processes that do the perceiving, discriminating, and organizing.

In this patient, the pattern described contained elements of functioning stability as well as ego defect. Perhaps the difficulty in evaluating this person as having a defective ego rests on the expectation that such a state of affairs must be accompanied by evidence of a

breakdown of structure with primary process expression in delusions, hallucinations, diffusions, etc. However, integrative functioning is not totally absent or collapsed. The person being described perceives, recalls, recognizes, and has some self-evaluative capacity so that his behavior is generally confined within society's limits of acceptance. This means that his functioning can be conceptualized from two perspectives: (1) he has part "ego" functions that can serve a system of piecemeal adaptation of moment-to-moment contact with concrete environmental segments, (2) he lacks the ego integration that emerges out of a synthesis of self-experience so that his functioning is deficient in the interrelationship of the total person to reality. From an adaptational point we see heavy reliance on a cue directed,

narrow, unreflective mode of operating that appears pathological in one sense but also avoids demands on the deficient integrative and coordinating functions. This is a mode of existence and it succeeds as long as it serves the patient in avoiding confusion and disorganization.

SECOND CASE

A woman of 32 had been a mental hospital patient for several years. She alternated between lucid and intelligent comments and silly laughter or anxiety and terror. The problem for the examiner was to bring greater clarity to the pattern of her functioning with the goal of devising a treatment program that would stem the apparent gradual deterioration and/or have some promise of positive change.

RORSCHACH PROTOCOL

Free Responding

- I. 20" 1. Looks like a bird, that's all.
2. Oh well, two hands there. Do I have to tell everything I see?
3. Two men
4. And this looks like the back of a woman. That's all I see on that one.
- 90"
- II. 10" 1. That looks like two bears.
2. That I don't know, that looks like some kind of bird down there to. That looks like two rocks, I don't know. Two hands there, they're together there.
- 75" That's all I see.
- III. 15" 1. Two bearded men right there. What does it look like to you. I don't like to do this. Well nothing. It looks like they're warming their hands over a fire.
2. There that looks like somebody with them, feet up in the air, to me.
- 80" That's all I see.

Inquiry

1. The whole thing. Had wings. It looks like any bird in part. (Q) Uh, uh, flying. Don't it to you. W FM+ A
2. Shape. D1 D F+ Hd
3. Chin or just the head or neck. Is there a head there or not. D6 D F+ Hd
4. Hips, feet, and part of arms. Hasn't got a head. Just the shape. Just part of her back. D3 D F+ Ad P
1. Well, just shape of bears, way they are standing. This one has his face toward that one, just putting their hands together. Let's hurry with this. D6 D FM+ A P Pec
2. Then everything looks like a woman to me. (Q) Nothing. No, not any. (Q) The Shape, Rocks, D3 D F+ Nat.
1. That's the fire too, both. Just bearded men. There and there. (Beards) Can't you see it. Fire - it looks like it, but seems like they're warming their hands. (Q) No, cause it's red.
D1 D M+ H P
D3 D C Fire Fab. comb.
2. Looks like a man, head, back, feet. (Q) No. D25 D F+ H Fab. comb.

- IV. 71" 1. Well, that looks like a man too, with his back turned or what. A woman, she's in, no, he's . . . this is him and she's. . . I don't know if she's in front or in back. That's all I see. Two arms hanging down.
125" W F- H Confab
- V. 24" 1. Another one looks like a bird too, everything looks like a bird today.
2. Well, a little girl's feet up there.
3. A crow's big claws here.
91" That's all.
- VI. 90" 1. That looks like a, Oh dear, I don't want to. Well, looks like a . . . huh. . . at first it looks like Jesus.
2. Then when I . . . There, that's all it looks like. Down at the bottom I don't know what it looks like. Looks like a man's face with a big nose.
214" That's all.
- VII. 36" 1. That looks like something, something somebody fell into. I don't know what it would be. That's all it looks like.
2. Two chairs.
90" That's all I see.
- VIII. 35" 1. Hm. - two wolves, red ones, you see 'em, or dogs. That's all.
2. This looks like a fire too, if it don't change.
3. Looks like the ribs of a man there. That's all.
125" D1 D F- Obj. O
- IX. 60" 1. Oh, that, that's something else again. Let me see - that looks like two prophets. And a rainbow, you can see it. That looks like nothing, same old thing.
2. This looks like Statue of
1. Well, he's standing over the body of a woman. There's her feet, otherwise she looks like she has a gown on. Head, no, I can't. (Q) At first she looked like she was standing. She's standing. (Q) No. Well, in one way looks like he's just killed her, but in another way, it don't.
W F- H Confab
1. Well, it's got wings - a back there. (Q) No, I don't. Standing still. W, F+, A
2. Legs and feet. (Q) Well, if I looked at it long enough, the head, (Q) No, I don't. D8 D F+ Hd Arbitrary
3. Here, just looks like it. D9 D F+ Ad O
1. Well, here and here. (On the cross) Well, while ago I could, but now I can't. I want to go back, it upsets me. D8 D F+ H
2. Forehead, nose, mouth, eye, got its mouth open. D4 D F+ Hd
1. Well, looks about like a kettle or a volcano. First looked like a volcano, then looked different. Kettle - now, a kettle you cook something. Ws F-Obj.
2. Just chairs. They look a little like a throne, like a king sets on. Majestic I'd say. D1 D F- Obj. O
1. Well, shape, pink (um, um) Well, I don't know, guess it did (Pink) They're standing on something. D1 D F (C) + A
2. There - well, it's red. D7 D C Fire Symb
3. D3 D F+ At
1. Here, just looks like it. Oh, they are pointing toward the rainbow. Yes. I think it means the end of the world, or the beginning of it. If everybody gets saved it's the beginning. Just because it was there with the prophets. It looks like a fire. I hope it changes though. It's going to be that if it don't change. Just

Liberty but it's across the water. Did it change again.
 3. Two green dogs. Let's not say that.
 4. Looks like some kind of men too.
 5. And two angels there.

229" That's all I see in there.

X. 30" Well nothing.

1. Two green dragons.
2. This is a little girl's feet. I'm pointing it out, so you don't have to ask. I thought I was going to do different today.
3. That red don't look like fire, not this time. Maybe it should. In one way it looks like old man fire.

244" That's all.

This case is selected to illustrate ego defect and adaptation in a more acute condition than was shown in the first case. In both cases we find a basic defect in the integrative, coordinating processes of the ego. In both cases we expect difficulties in the harmonious integration of perceptual and cognitive material, and difficulties in coordination of a stream of behavior over time. There are, however, also some key differences. In the first case we observed coordinated functioning on the surface level although fine examination indicated that this was more of a patchwork adaptation than a basic synchrony of functioning. In the present case, the patients' ego impairment prevents any prolonged organized functioning. Instead we have the impression that a good portion of her existence consists of helpless, confused floundering amid fearful thoughts and affect.

The patient frequently responds with intelligible and intelligent responses. However, the quality shifts rapidly and at one moment she may describe a per-

does. D3 + D32

dr D. M-H Confab
 D F-, Nat

2. Statue there. There's the frame. It is across the water. D8 D F- Art.
3. I changed that. No. D1 D F-, A
4. (Head of a man) No, it looks like it has horns. (Devil) Somewhat. He's just there. D4 D, F+ Hd.
5. (Q) I didn't say angels. I better quit what I'm doing. (Q) There and there. Looks like they're flying. Shape mostly. S, M-, (H)

1. Well, in shape of dragons - D4 - to me, holding that little girl up. D5. You think this is going to help you figure me out, do you. Just her legs and dress. If she lets them hold her, they will; if she don't, they won't.

D, FC + A
 D D, F- Hd, Fab Comb

3. Here and here, you know where that's at. Got a face again, and he's red like fire. D9 D CF- Fire Contam.

cept that is somehow arbitrarily tacked onto the preceding response; at another moment a new element is introduced and "takes over" as the dominant feature of the percept. There is a "churning" of associatives and perceptions; they come to the surface like ideas come to the mind in day-dreaming. The indication is that there is relatively little "executive" ego guidance and organization; the patient does not seem to be developing responses in a "dealing with the task" manner. There are many extraneous comments that communicate the helpless and anxious feelings that she experiences when her responses show confusion. Her only recourse is to try to get away from the test stimuli; there are no alternative defensive strategies apparent and presumably none available.

An illustration of this kind of instability and the patient's sense of experiencing confusion is seen in her comment to Rorschach Card VIII, "This looks like a fire too, if it don't change." The manner in which such instability can yield

not only to new thoughts but to wider ranging ideas that veer out of control is illustrated in her comments on Card IX, "Two prophets and a rainbow . . . they are pointing toward the rainbow . . . I think it means the end of the world, or the beginning of it." In this response, the stimulus presented to the patient initiated a process of reality based perception and conceptual association - we can see what gave rise to the percept - but there is a lack of those governing processes that would bring the further associated elements into an organizational schema coordinated with the situational demands. That is, instead of drawing together a percept that could be justified by the blot properties, her mental processes "take off" from the stimuli. In this panorama of functioning the ego is not maintaining contact with reality demands. Concomitantly it has lost the coordination of the mental processes.

The patient's functioning can be described as fluid or loose but the extrapolated implication is that the ego is defective in those functions that exercise executive control; screening, evaluating, anticipating, and developing logical sequence. However, the question remains of why the patient's behavior appears to vary in degree of appropriateness and quality of organization from moment to moment. Does the postulated defect exist at one moment while ego intactness is true at another? Or does anxiety sometimes increase and interfere with already weak ego functions? The answer is related to a further observation of the character of the patient's Rorschach behavior. She responds with better integration at the beginning of each card, and like the patient in Case I, she responds with less confusion to cards that have greater "card pull" or intrinsic structure. She was notably more fluid and introduced more irrelevancies on cards that generally elicit fewer populars and are more complex (IV, VI, IX). We observe that the adequacy of functioning appears to be related to external clarity or directiveness. That is, the organizational level of the patient's responses vary directly with the degree

to which environmental stimuli direct, guide, or point the patient in the right direction and hold her "on course". She is "triggered" into appropriate functioning by environmental intrusion and she can retain appropriateness if her effort is of short duration. When such effort is not directed in terms of sharply delineated tasks or clear terminal points, the mental processes lose direction and coordination.

In addition to the radical difference in style of functioning, the contrast between these two patients - both suffering ego defect - has implications for differences in adaptive capacity. This woman demonstrates very little in the way of ability to gear herself to the limitations of her defective structural system; one observes a gross helplessness in her functioning. It is as though outer stimuli have the impact power to get something started and what goes on continues only as long as that momentum can carry through some kind of organized functioning. When the "momentum" of external guidance loses impact what has been initiated within her carries on, but without coordination with the environment and/or with internal organization.

Treatment Potential

The usual forms of psychotherapy would be of little use to this woman since they require prerequisites that this woman lacks: an organized ego capable of experiencing itself in relationship to another person; the capacity to accurately receive communications; and the capacity to gain conceptual perspective of oneself. This patient may be therapeutically engaged at the point that she has some capacity for reality contact and ego organization. With ego resources as weak and fluctuating as they are, therapy must embody forces of quality and quantity that will stimulate, arouse, hold, and reinforce concerted ego functioning. The initial therapeutic goal should deal directly with the pathology as a structural defect and employ therapeutic agents that increase the ego's adaptive capacity. DesLauriers (1962) and Freeman, Cameron, and McGhie

(1958) have an extensive discussion of specific methods and techniques related to these goals.

ASSUMPTIONS OF THE STRUCTURAL APPROACH

(1) Schizophrenia is an impairment in the hierarchical organization of the ego. Three basic processes of organization can be separated conceptually in terms of function but their functioning is highly interactional. The processes are: internal organization, synchrony of adaptive processes with the environment, and coordination and continuity of experience over time.

(2) Shifts between different phases of the schizophrenic condition are assumed to reflect disruptions in equilibrium between ego impairment and ego adaptive functioning (as from latent to acute conditions) or reflect the regaining of equilibrium (as from acute to remission).

(3) The approach recognizes variability of functioning within any given phase. Difficulties in functioning encountered in any part of this interaction effect the functioning in other portions and pose the danger of disorganization. On the other hand, clarity and sharpness of environmental input prompts responses which foster organization and this organization in turn facilitates

coordination in other portions of the interaction.

(4) The structural approach is one of examining the ego processes involved in adaptive behavior. The data for inferences about adaptive functioning are the observable relationships between environmental demands and overall contiguous behavior. The approach is one of pattern analysis rather than of isolating and quantifying factors. Ego impairment, adaptive behavior and environmental input are interactional.

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Artistic Creativity and Rorschach Whole Responses

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Summary: The present experiment investigated artistic creativity as it functions in the production of whole responses to Rorschach ink blots. The number, percentage, and quality of whole responses produced by a group of artists were compared to that of a group of nonartists under two instructional sets (regular instructions versus whole response set). Artists and nonartists did not differ significantly in whole response quality. Artists and nonartists gave significantly more whole responses under the whole response set, but artists produced a significantly greater number of whole responses, regardless of instructions. Artists gave a significantly greater proportion of whole responses only under regular instructions. These results give statistical verification to the discriminatory power of Rorschach whole responses in the identification of artistic creativity.

In the early 1920's Herman Rorschach (1942) proposed several ink blot response variables as possible indicators of artistic creativity. He stated that among non-psychotic persons, creative individuals should give (1) a maximal number of good form responses, (2) the largest number of human movement responses, (3) the largest number of original responses, (4) a smaller percentage of animal responses, and (5) the highest number of organized whole responses. Similarly, Piotrowski (1943) stated that creative capacity is represented by good human movement responses and easy production of a type of whole response in which there is integration of details into a meaningful whole.

From a review of the literature it becomes apparent that the Rorschach variables initially proposed as indicators of creativity do not reliably identify creative individuals (Burchard, 1952). Roe (1946a; 1946b; 1946c), for example, studying 20 leading American painters, in contradiction to Rorschach's predictions, found form level only average, human movement relatively low, few original responses, and a high percentage of animal responses. She did, however, substantiate the prediction that creative individuals tend toward giving a larger number of organized whole responses.

In reviewing the work of other researchers (Anderson and Munroe, 1948; Harrower and Cox, 1943; Prados, 1944; Steiner, 1947), it was noted that production of whole responses held up more consistently than any other Rorschach variable as an indicator of artistic creativity. In view of this suggested relationship, the present study was undertaken: (1) to verify statistically the discriminatory power of whole response production in differentiating artists from nonartists and, (2) to evaluate the effect upon discriminatory power of increasing whole response production by means of a whole response instructional set.

METHOD

Subjects

Subjects used in the study were 16 male and eight female artists and 16 male and eight female nonartists. All artists were selected from among those engaged in the instruction of fine arts (painting and/or sculpture) at either Memphis Art Academy or Memphis State University. Nonartists, most of whom were teachers in the Memphis-Shelby County School System, were selected from a pool of students enrolled in one of four graduate courses at Memphis State University.

From the pool of graduate students,

selection of nonartist subjects was carried out in the following manner: (1) since the artist sample included only Caucasians, all nonartists other than Caucasians were eliminated from the sample; (2) all art teachers and those with B.F.A. and M.F.A. degrees were removed from the sample; (3) any nonartist either older than the oldest artist or younger than the youngest artist was removed from consideration; (4) all nonartists with either more education than the highest number of years attained by an artist or less than the lowest number of years attained by an artist were eliminated from the sample; (5) allowing for a distribution of sex identical to the artist groups, a table of random numbers was used to select the nonartist groups from those not eliminated by the foregoing criteria. Upon completion of subject selection, *t* tests showed that the groups were not significantly different with regard to age and education. Subjects are described with respect to sex, age, and education in Table 1.

following instructions to give only whole responses:

Your task is to organize and put together the various parts of the blot into a meaningful whole. Look carefully at the whole blot and write down what you see, what it might be, what it resembles, or what it reminds you of. Looking at the whole blot, put down everything that comes to your mind. Remember, give only those responses that encompass all or very nearly all of the blot.

All protocols were scored independently by three psychologists possessing clinical experience with the Rorschach and well acquainted with Klopfer's scoring of whole responses. Protocols were identified only by number so that judges were unaware of the groups from which they came.

Three of the four Klopfer subclassifications of whole responses were considered acceptable. These were: (1) W—a response covering the entire blot; (2) W cut-off—a response which covers at least two-thirds of the blot; and (3)

TABLE 1
DESCRIPTIONS OF SUBJECTS

Group	Males	Females	Mean Age	Mean Years of College
Experimental:				
Nonartist	9	3	34.2	5.4
Artist	9	3	34.5	5.4
Control:				
Nonartist	7	5	38.4	5.2
Artist	7	5	37.6	5.2

Procedure

By means of the Rorschach Group Method, Cards I, II, III, IV, VI, VII, VIII, and X were administered to all subjects. Cards V and IX were omitted arbitrarily to allow presentation in a 50-minute class period. Each card was projected on a screen for a duration of five minutes in the upright position.

Half of the subjects (12 artists and 12 nonartists) received regular instructions while the other half received the

WS—a response which covers the entire blot and includes the white spaces (Klopfer, Ainsworth, Klopfer and Holt, 1954). If in the opinion of the judges a response was of *F* minus form level, that response was not counted even though it may have qualified otherwise as a whole response. A subject's score was the total number of whole responses considered acceptable by at least two judges.

Whole responses were evaluated further by means of a quality scale which was a combination of form level rating, popularity and originality of response. Judges assigned a rating along a three-point continuum to each whole response. Judges assigned a rating of *one* to whole responses of vague or indefinite form. A value of *two* was assigned to the more obvious or common sense wholes (including the popular responses). A value of *three* was assigned to intensely and sharply articulated wholes; this type of response included the finely differentiated whole as well as the tightly knit combinatory whole. A common response elaborated to the degree of integrating all parts of the blot was considered within this category. Original responses of good form level also received a value of *three*.

RESULTS

Analyzed by means of a two-way classification analysis of variance, the data showed that artists produced a significantly greater number of whole re-

sponses, regardless of instructions ($p < .001$). The whole response set increased the production of acceptable whole responses for artists and non-artists alike by approximately 30 percent ($p < .05$). Even though whole response production significantly increased for both groups due to the whole response set, artists still responded with approximately twice as many acceptable wholes as did nonartists under both sets of instructions. The interaction between these variables was not significant. A summary of the analysis of variance is presented in Table 2. Table 3 shows the mean number of acceptable responses for each group.

The proportion of acceptable whole responses to total responses was also analyzed. When instructed to respond only with wholes, the proportion of whole responses increased only slightly for artists (four percent). Nonartists, however, nearly doubled the same proportion when they received the special instructions ($p < .001$). Acceptable whole response percent for each group is presented in Table 4.

TABLE 2
SUMMARY OF ANALYSIS OF VARIANCE OF
WHOLE RESPONSE PRODUCTION

Source	df	MS	F
Instructions	1	64.33	5.10 ^{ns}
Artists versus Nonartists	1	444.08	34.68 ^{***}
Interaction	1	3.00	.23
Error	44	12.81	-----
Total	47	-----	-----

^{ns} p .05

^{***} p .001

TABLE 3
MEAN NUMBER OF ACCEPTABLE WHOLE RESPONSES
FOR EACH GROUP

Group	Regular Instructions	Special Instructions	Combined Instructions
Nonartists	5.6	7.4	6.5
Artists	11.2	14.0	12.5
All Subjects	8.4	10.7	----

TABLE 4
PERCENT OF ACCEPTABLE WHOLE RESPONSES
FOR EACH GROUP

Group	Regular Instructions	Special Instructions	Combined Instructions
Nonartists	13.6%	26.2%	18.7%
Artists	26.4%	30.3%	28.4%
All Subjects	20.1%	28.2%	—

Prior to analyzing the data for quality of response, a coefficient of concordance was computed to determine the agreement among judges. Interjudge reliability was expressed by a coefficient of .68 ($p < .001$).

By means of a two-way classification analysis of variance, a comparison of artists and nonartists was made with respect to the quality of their whole responses. No significant difference was found in the quality of responses given by artists and nonartists. No significant difference was found in response quality between instructions. Likewise, the interaction between the two variables was not significant.

DISCUSSION

The results of the present study give statistical verification to the suggestion by previous studies that Rorschach whole response production is a significant discriminating factor in the identification of artistic creativity. A clear differentiation was found in whole response production when groups were different in no important sense other than the fact that half of the subjects were art instructors and the other half were not.

An instructional set to produce only whole responses did not improve the discriminatory power of the Rorschach in the detection of artistic creativity. While artists, under the instructional set to produce whole responses, scarcely increased whole response production, non-artists, on the other hand, almost doubled their percentage of acceptable whole responses. Thus, it appears that

the artist has a predisposition to respond with wholes whether instructed to do so or not. When instructed to do so, however, nonartists can manifest a considerable amount of this ability.

No significant differences were found in the quality of whole responses as measured by the quality scale. However, further investigation of the quality variable revealed differences in quality of response not measured by the scale. Taking into consideration these differences, future research may produce a scale sensitive to criteria that will differentiate the response quality of artists and nonartists.

Close scrutiny of the protocols revealed the following differences in response quality. First, artists were not nearly as inhibited in their responses as were nonartists. Artists appeared to respond much more freely with their impressions, regardless of the connotations; responses involving sex organs and variations of sexual activity were not at all uncommon.

Other responses occurring with much greater frequency among artists were percepts of an abstract nature. On the other hand, nonartists were much more stimulus bound, tending to respond more concretely. Among the numerous abstract responses of the artists were such responses as: childbirth, peace, impending doom, flight, death, etc.

Precision alternatives occurred far more frequently among nonartists. This type of response appeared most often under the whole response set when a subject's supply of whole responses for a particular stimulus was already limit-

ed. In an effort to increase the number of responses, the nonartist, in essence, began repeating himself. Thus, artistic creativity appears to be reflected by facility in change of set which manifests itself in greater production of *different* whole responses.

The objective world as viewed by the artist is, of course, the same in terms of stimulus properties as that viewed by anyone else. However, creative artists seem to perceive and interpret these stimuli somewhat differently. One such characteristic of the artist is that of tentatively trying out different ways of perceiving the same stimulus field. According to Guilford (1950), Lowenfeld (1958), Torrance (1959) and others, such factors as tolerance for ambiguity, disposition toward the integration of diverse stimuli, perceptual flexibility, and facility of change in set characterize the artist's perceptual processes. It is the authors' contention that at least some of the perceptual processes involved in the creative interpretations of artists are very similar, if not identical, to those involved in whole response production to Rorschach ink blots. Furthermore, it seems logical to assume that many, if not all, of the factors Guilford has shown to be involved in creative thinking, could be sampled in the process of whole response production.

The nature of the Rorschach ink blots, their ambiguity, relative complexity, and their unfamiliarity to the subject would seem to provide opportunity for one to demonstrate his creative facility. Furthermore, the Rorschach may possess the potential for evaluating levels

of perceptual functioning not tapped by verbal tests of creativity.

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The Relationship of Selected Variables to Intrafamily Similarity of Defense Preferences

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Summary: Fifty males, 17 and 18 years of age, and their natural parents were given the Blacky Defense Preference Inventory to investigate the relationship between selected variables and intrafamily similarity of defense preferences (SDP).

The results indicated that maternal age, parental identification, and birth order of son were related to son-mother SDP. However, paternal age, parental identification, and birth order of son were not associated with son-father SDP. The data indicated that son-father and son-mother SDP were highly correlated, and that husband and wife were inclined to have similar defense preferences. Socioeconomic class was not related to son-father or son-mother SDP.

As part of his two-factor learning theory, Mowrer (1953) stated that solution learning, including defense mechanisms, is greatly influenced by family relationships. Similarly, Swanson (1961) and Witkin, Dyk, Fatterson, Goodenough and Karp (1962) have proposed that children acquire defense preferences (hereafter referred to as DP) from their parents.

Several studies have shown the importance of the family environment upon the acquisition of DP. Selzer (1957), Weis (1957), Miller and Swanson (1960), and Haan (1964) have found differences in DP related to social class. Since psychological symptoms are in large part made up of the defenses involved, a recent study by Dohrenwend (1966) is pertinent. He found more symptoms manifested by first born subjects when social isolation was enforced. Under conditions of social interaction, later born subjects showed the greatest incidence of symptoms. The relationship between sex identity and defenses against aggression has been investigated by Miller and Swanson (1960). They reported that men with a feminine identity utilized denial and withdrawal more than men with a masculine identity.

Other studies have focused on more specific parental behaviors and their relation to the DP of the offspring. Miller and Swanson (1960) and Weinstock (1967) have found that the son's DP are often similar to the parental behaviors, particularly those of the father. Likewise, Witkin et al. (1962) found that children

tend to utilize defenses similar to those employed by their parents. Thelen (1965) reported a similarity of defense preferences (hereafter referred to as SDP) between adolescent males and their fathers but failed to find a comparable pattern with respect to the males and their mothers.

The above research points out the importance of the family environment to the acquisition of DP, and further indicates that there are similarities in preferred defenses between parent and child. It may be expected, however, that there are varying degrees of SDP between parent and child. The purpose of the present investigation is to explore the relationship between the similarity of the son's DP to those of his father and his mother, and a number of variables generally associated with the family. A secondary purpose is to investigate the SDP between husband and wife. More specifically, this study considers the relationship of son-father and son-mother SDP to: (1) age of parents; (2) socioeconomic class; (3) parent identification; and (4) ordinal position. In addition, the SDP between husband and wife, and the relationship between son-father and son-mother SDP, are investigated.

METHOD

Subjects and Procedure

The subjects for this study consisted of fifty males, 17 or 18 years of age, and their natural parents. All of the adoles-

cents were living with their natural parents at the time of the study. The adolescents were students in two coeducational high schools, one of which is a Catholic high school and the other a public high school containing primarily Catholic students. The general occupational level of the adult males may be described as follows: 10 as managerial or professional, 22 as skilled or white-collar, and 18 as unskilled. Seventy-two per cent of the families contacted agreed to take the tests.

The adolescents and their parents were given the Blacky Defense Preference Inventory (DPI) according to the instructions and procedures established by Blum (1956). In addition, the adolescents completed an Adjective Check List (ACL) which was devised by Block (1958) as a measure of parental identification. This measure of identification is based upon the similarity between the subject's ideal self and his perception of his parents. Thus, in this study, each adolescent took the ACL three times: first in terms of "your ideal self," next in terms of "your father," and finally in terms of "your mother."

Analysis of the Data

The DPI data consists of the rankings of five statements, each of which reflects a given defense category, by the subjects, to each of the 11 cartoons. Two subjects may be compared by determining the differences in ranks to each cartoon and summing these differences over all 11 cartoons. These difference scores were squared to accentuate the dissimilarity of two ranks to a given statement. The total dissimilarity score was subtracted from a constant providing a total score indicating the SDP between two subjects. The ACL consists of 79 adjectives, of which the subject is to mark 30 indicating agreement, 30 indicating disagreement, and 19 indicating uncertainty or neutrality.

Block's (1958) scoring of the ACL merely summed the number of items of agreement between the measure of "ideal self" and "your father" or "your mother." In order to take into account the degree of differences on any

given item, the responses were seen as ranked data with disagreement equaling one, neutrality comparable to two, and agreement equal to a rank of three. The "ideal self" measure was compared with the described father and described mother scores on an item by item basis. The difference scores were squared and summed over all items giving a measure of identification with father and with mother.

The measure of socioeconomic class was devised by Hollingshead (1957) and is based on the education and occupation of the father. In this study the numerical figures, instead of the five social class categories, are employed, permitting analysis along a single dimension.

The data were analyzed with either a correlation or a z statistic. The z statistic is based on the Mann-Whitney U Test for the identification and birth order analyses, and on the Wilcoxon Matched-Pairs, Signed-Ranks Test for the analyses of SDP between husband and wife.

RESULTS

Table 1 summarizes the results showing the variables, the nature of their relationship, and the level of significance. With respect to parental age, Table 1 indicates that, while there is a positive correlation between father's age and son-father SDP, it is not significant. However, the correlation between mother's age and son-mother SDP is significant ($p < .05$), suggesting that those adolescent subjects having older mothers are likely to have a greater SDP with their mother.

Since later born are likely to have older parents than first born, parental age and ordinal position are related variables. In order to investigate ordinal position, the adolescent subjects were divided on the basis of first ($N=17$) and later born ($N=33$). Table 1 shows that the first and later born adolescent subjects do not differ in son-father SDP; however, they do differ in son-mother SDP ($z=2.13$, $p < .03$). The latter finding indicates that the later born adolescents are more similar to their mother in DP than are the first born.

Table 1—Son-Parent Similarity of Defense Preferences (SDP)
Scores in Relation to Selected Variables,
and Comparison of Husband-Wife SDP

Variable	and	SDP Score	r	z	p ^a
Age of Parents					
Father	Son-Father		.21		ns
Mother	Son-Mother		.29		.05
Social Class					
	Son-Father		.08		ns
	Son-Mother		.10		ns
SDP Son-Father	Son-Mother		.42		.01
Most Identified Parent					
	Son-Father			.06	ns
	Son-Mother			1.68	.09
Ordinal Position					
	Son-Father			.56	ns
	Son-Mother			2.13	.03
SDP Husband-Wife					
	Husband-Other Wives			-2.03	.04
	Wife-Other Husbands			-2.17	.03

^a

Two-tailed

Socioeconomic class, as reported in Table 1, bears no more than a chance correlation with son-father SDP or son-mother SDP. An additional analysis, based upon five levels of socioeconomic class, likewise reveals that the socioeconomic groups do not differ appreciably in son-father SDP ($F=.20$) or in son-mother SDP ($F=.18$).

The next data reported in Table 1 deals with the extent to which son-father and son-mother SDP are related. The correlation (.42, $p<.01$) indicates that, when an adolescent subject has DP similar to one parent, he will show SDP to the other parent as well. A somewhat related finding concerns the SDP between husband and wife. The data suggest that the adult male subjects are more similar to their wives in their DP than to the nonrelated adult females ($z = -2.03$, $p<.04$). Likewise, the female subjects have preferred defenses more similar to their husbands than to the nonrelated adult male subjects ($z = -2.17$, $p<.03$). These data clearly support the notion that husband and wife employ similar defenses.

In order to assess the relationship between parent identification and son-parent SDP, the adolescent group was dichotomized on the basis of one subgroup showing greater identification with father ($N=30$) and the other showing greater identification with mother ($N=18$). Father-identified and mother-identified adolescents do not differ in son-father SDP; however, a slight difference ($p < .09$) is noted in son-mother SDP. Furthermore, the data indicate that those adolescents with greater son-mother SDP tend to be father identified rather than mother identified.

DISCUSSION

In general, the results of this study indicate that investigating variables associated with son-parent SDP is potentially useful. Furthermore, this study supports Mowrer's (1953) notion, that defense mechanisms are influenced by family relationships and the position of Swanson (1961), that defenses are acquired by the individual primarily in the family situation, rather than constructed by him.

The results having to do with the relationship between ordinal position and SDP between son and parents raise a number of interesting considerations. Son-father SDP was not related to birth order; however, later born were more similar to their mother in DP than were first born. This suggests that, for male offspring, ordinal position has greater consequences for the son-mother relationship than for the son-father relationship, particularly as regards SDP. In view of these data, it would be of value to investigate the relationship between ordinal position and daughter-parent SDP.

The positive correlation between mother's age and son-mother SDP is not too surprising in view of the ordinal position data. It does raise the possibility, however, that maternal behavior (especially as it affects son-mother SDP) may vary as a function of the age of the mother, without regard for ordinal position. (It should be noted that additional analyses of the data reveal no significant changes in mother's DP as a function of her age.) McArthur (1956) reported evidence for differential handling of first and second born children. Such data suggests that maternal age might be profitably investigated while holding ordinal position constant. Likewise, groups should be equated on parents' age when investigating ordinal position. Age of parent is but one of a number of variables which should be controlled in ordinal position research. Sampson (1965) mentions subject sex, sibling sex, age spacing, family size, and socioeconomic status as highly pertinent variables which should be controlled. In the present study, for example, the first born comes from families with a mean of 4.59 children per family as compared with a mean of 6.33 for the later born. Although, in this study, the subjects tend to come from large families and later born have more siblings than first born, additional analyses indicated that family size was unrelated to son-father or son-mother SDP.

While socioeconomic class has been found to be related to differences in DP

(Selzer, 1957; Weis, 1957; Miller and Swanson, 1960; Haan, 1964), this study suggests that social class does not have a critical bearing on SDP between adolescent males and their parents.

The findings on parental identification raise interesting questions as to the role of identification in the development of son-parent similarities. If DP are acquired via identification with parents as Miller and Swanson (1960) and Weinstock (1967) suggest, one would expect father-identified adolescents to show higher son-father SDP and those who are mother-identified to show higher son-mother SDP. This study clearly fails to support such expectations. Furthermore, the father-identified adolescents tend to show greater son-mother SDP. Likewise, Kavin (1966) failed to support a hypothesis that four-year-old children would be mother-identified and thus would show more SDP with their mother than their father. Weinstock (1967) observed son-parent SDP and concluded that the parents' modeling of defense behaviors is an important determinant of the defenses acquired by the son. Such data do not offer exclusive support for the modeling notion and are just as consistent with the idea that defenses are learned as a result of differential reinforcement. Learning by differential reinforcement, rather than modeling, was put forth by Greenstein (1966) as the concept which best accounted for his data on the relationship between father characteristics and sex typing.

Two other alternatives should be mentioned as possible approaches to and explanations for the acquisition of DP. The first is that a close child-parent relationship may result in a complementarity of DP. For example, the father's use of aggressive defenses (e.g. projection) may lead his son to develop withdrawal defenses (e.g. avoidance), especially in the son-father relationship. The second alternative is that genetic factors are important determinants of son-parent SDP. A number of writers, including Freud (1950) and Hartmann (1958) have emphasized genetic factors: Investigations on the SDP of adopted chil-

dren with their biological and legal parents, or separated-twin studies might bear on this question.

The finding that son-father and son-mother SDP are highly correlated adds to the ambiguity and complexity of research on the acquisition of DP. In those instances in which the parents have a comparable preference for a given defense, it could be difficult to separate the relative influence of each parent on the acquisition of this defense in their children. Such parent similarity appears to be common as evidenced by the findings that the adult subjects were more similar to their spouse in DP than to nonrelated adults of the opposite sex. Future research might profitably explore the extent to which the SDP between husband and wife is a function of mate selection or change after marriage.

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The Adjustment of Drug Addicts as Measured by the Sentence Completion Test

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Summary: The Rotter Incomplete Sentences Blank was administered to fifty out-patients at a rehabilitation center for narcotic addicts. There were twenty male heroin users, twenty male pill users, and ten female heroin users. Interscorer, intrascorer, and split-half reliabilities were all high. It was found that a cutting score of adjustment of 135 correctly identified 80 per cent of the male heroin users, 90 per cent of the male pill users, and 100 per cent of the female heroin users.

The adjustment score on the Rotter Incomplete Sentences Blank (Rotter & Rafferty, 1950) or ISB has a theoretical range from 0 to 240. The authors suggest that scores in excess of 135 indicate maladjustment. A number of studies reported the 135 score useful in identifying maladjusted subjects (Churchill & Crandall, 1955; Rotter, Rafferty, & Lotsoff, 1954; Rotter, Rafferty, & Schachitz, 1949), while others reported that the score was too low (Bieri, Blacharsky, & Reid, 1955). Still others reported the score to be of little value (Lit, 1956; Rose, 1965).

In terms of reliability the ISB has been shown to be a highly reliable instrument (Gardner, 1966). Interscorer reliability coefficients have generally ranged around .90 (Arnold & Walter, 1957; Chance, 1958; Friesen, 1952;) split-half reliability coefficients have ranged around .85 (Friesen, 1952; Hadley & Kennedy, 1949; Rotter, Rafferty, & Lotsoff, 1954). In one case intrajudge reliability was assessed and found to be .86 (Hadley & Kennedy, 1949).

The ISB was administered to 50 out-patients at a rehabilitation center for narcotic addicts. They were divided into three groups: heroin using males (20Ss), pill using males (20 Ss), and heroin using females (10 Ss). The criteria for classifying a S as heroin using were

(1) that he had used heroin and (2) he had withdrawn at least once and then returned to heroin usage. The criteria for classifying a S as pill using were (1) that he had used some form of addicting pill, (2) he had withdrawn at least once and then returned to pill usage, and (3) he had not used heroin to the point of having withdrawn.

The 135 cutting score correctly identified 80% of the heroin using males, 90% of the pill using males, and 100% of the heroin using females. The mean scores for the three groups were 151.15, 156.90, and 166.50 respectively. Interscorer reliability for three judges rating ten protocols was .88. Intrajudge reliability for one judge rating the same five records with an eight month interval was .80. A split-half reliability coefficient of .84 was found for ten protocols.

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Tachistoscopic vs. Conventional Presentation of Incomplete Sentence Stimuli¹

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Summary: The Rotter Incomplete Sentences Blank (ISB) was administered to college students under tachistoscopic (T) and conventional (C) modes of presentation. In the T-mode, sentence stems were completed with random letters. No significant differences were found due to sex, sets (items 1-20 vs items 21-40), modes, or order of presenting sets or modes. Within the male data only, Set 2 had significantly higher scores than Set 1, and the C-mode produced higher scores than the T-mode. Implications are discussed.

The tachistoscope, when being used in traditional psychological methodology to present stimuli in a series of constantly increasing exposure times, actually presents stimuli that are ambiguous if the exposure time of the stimuli is too brief to permit the correct perception. However, to this author's knowledge, virtually no studies examining the tachistoscope specifically as a projective device have been reported. Indeed, the use of a tachistoscope in conjunction with a projective device has only seriously been undertaken in recent years by one experimenter, Haruyo Horiuchi, who was concerned mainly with the perceptual processes operant in the Rorschach (Horiuchi, 1959, 1961).

The purpose of this study was to compare subjects' oral responses to the tachistoscopic presentation of modified incomplete sentence stimuli with written responses to the same stimuli presented in conventional, printed form. The stimuli for the tachistoscopic presentation were developed by completing conventional Rotter Incomplete Sentence Blank (ISB) sentence stems with letters of the alphabet selected, grouped, and spaced at random, and typed in capitals, one sentence each upon a 4x5.5

inch stimulus card. (For example: I WANT CPLX NAVDNPQ R SVW). Each card was placed in a viewer tachistoscope in which the subjects saw the card by reflected light. A standard exposure setting was determined empirically at which, for most subjects, the sentence stems were correctly perceived but the random letter combinations as such were not easily discerned. Consequently, subjects tended to respond to the stimuli with complete sentences. Two pilot studies were performed to eliminate any random-letter sentence-endings which either biased responses in one scoring direction or did not elicit responses at all.

The subjects used in the major phase of this study were forty male and forty female undergraduate students at Purdue University. All subjects were presented all sentences (none repeated) in a balanced design in which a given subject could receive a given half of the ISB items either conventionally or tachistoscopically. The orders of item set and stimulus mode were controlled. The scoring of all responses was done by an independent, trained scorer, strictly according to the criteria presented in the ISB Manual (Rotter and Rafferty, 1950).

The data were analyzed by means of three-factor ANOV designs for non-repeated measures. No significant difference was elicited in scores due to sex, stimulus item sets, or the orders of presenting given sets or stimulus modes. In addition, no significant score difference

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was exhibited between the conventional and tachistoscopic modes of stimulus presentation. The ISB thus appeared to be quite robust, that is, it could be radically altered in certain ways without effecting a significant difference in the scores obtained.

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The WAIS Picture Arrangement Subtest as a Measure of Anticipation¹

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Summary: Recent research and theory has stressed the importance of future extension as a parameter in psychological development and in psychopathology. One of the primary methods for assessing future extension has been through fantasy productions to TAT cards or to story stems. Both of these methods have been useful but they are limited because they are dependent in part on verbal fluency. It has been suggested that the Picture Arrangement (PA) subtest of the Wechsler Adult Intelligence Scale assesses anticipation and planning and, as such, it provides a non-verbal measure of future extension. PA scores were found in a pilot study to have a positive and significant relationship to future extension as measured in stories told to story roots, and in the present study to future extension as measured in TAT stories.

One of the most promising developments in the empirical investigation of temporal experience in recent years has been the investigation of future time perspective. Although several dimensions of future time perspective have been differentiated (Kastenbaum, 1961) most of the empirical research has been concerned with *future extension* which is a measure of how far an individual extends his thinking into the future. The impairment of future extension in psychopathology has been extensively discussed with respect to impulse disorder (Barndt and Johnson, 1955; Levine and Spivack, 1957; Roth and Blatt, 1961), depression (Straus, 1947), and schizophrenia (Wallace, 1956).

A standard procedure which has been used to measure future extension has involved the scoring of fantasy productions. Thus, Le Shan (1952) asked his subjects to tell stories and these stories were scored for future extension. Barndt and Johnson (1955) and Wallace (1956) developed a more standardized method by introducing story roots. All subjects were given identical story roots and asked to continue the stories from there. Most recently, Epley and Ricks (1963) developed a procedure for scoring prospective span (future extension) and retrospective span (past extension) in TAT stories.

These procedures have been used to investigate the relationships between fu-

ture extension and social class (LeShan, 1952), frustration tolerance (Ellis, Ellis, Mandel, Schaeffer, Sommer, & Sommer, 1955), optimism and academic achievement (Teahan, 1958), interpersonal relations and emotional stability (Davids and Parenti, 1958), academic achievement, anxiety and emotional involvement with others (Epley and Ricks, 1963), and death concern (Dickstein and Blatt, 1966). These procedures have also been used to investigate future extension in schizophrenia (Wallace, 1956), delinquency (Barndt and Johnson, 1955) and old age (Kastenbaum, 1963). Although these methods have led to significant research, they are limited in application to subjects with verbal facility and the capacity and willingness to construct a story. There is a need for procedures to measure future extension which are non-verbal.

Rapaport, Gill and Schafer (1946) suggest that the Picture Arrangement (PA) subtest of the Wechsler Adult Intelligence Scale (WAIS) may be such a measure. They maintain that the capacity to place a "cartoon" sequence in meaningful order requires "planning

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ability" and "anticipation". The capacity to understand the cause and effect relationship between a series of discrete pictures seems to reflect a capacity to anticipate or understand a sequence which extends into the future. There is obviously a great difference between arranging a series of pictures into a sensible sequence and planning in everyday life. Nevertheless, a sense of continuity is dependent upon the capacity to anticipate from one moment to the next. It is the sense of anticipation which allows one to integrate and understand a complex array of stimuli and to organize them into a related and coherent sequence. If this capacity for anticipation is lacking, each event occurs in isolation and there is no organization or continuity. The PA subtest, in limited form, seems to reflect this capacity to anticipate the consequences of initial acts upon subsequent events. Rapaport et al (1946) report marked relative impairment of the PA subtest in schizophrenia, impulse disorders, and psychotic depressions. It is impressive that the three clinical groups reported by Rapaport et al, as having impaired PA scores are the same groups which independent research, theory and clinical observations have indicated as having impaired future extension.

As a preliminary attempt to test the hypothesis that the PA subtest is, in part a measure of anticipation and planning, data gathered as part of a prior study on death concern and temporal experience (Dickstein and Blatt, 1966) were re-analyzed. As part of this earlier study 28 undergraduate students in an introductory psychology course had taken the Vocabulary and PA subtests of the WAIS and had told stories elicited by the story roots developed by Barndt and Johnson (1955) and Wallace (1956) to measure future extension. The stories told to these story stems were scored for amount of time transpiring in the action of the narration. The 28 Ss were divided into two groups of 14 on the basis of their PA scores. The High PA group told stories with greater future extension to root 3 ($p=.084$) and to root

4 ($p=.012$) and to roots 3 and 4 combined ($p=.011$). There were no significant differences between the two groups on roots 1 and 2 separately or combined. Roots 1 and 2, and 3 and 4, were combined separately because prior research (Kastenbaum, 1961; Wallace, 1956) has indicated that roots one and two are different from roots three and four in that the former are more structured and involve an interpersonal situation.

These findings suggest that PA performance is related to future extension; but this conclusion could only be considered as suggestive, since the High PA group had a significantly ($p < .05$) higher Vocabulary score than the Low PA group. Thus, the difference in future extension could be, at least in part, a function of this higher Vocabulary score of the High PA group. To evaluate this possibility further, the 28 Ss were re-divided into high and low Vocabulary groups and these two groups did not differ significantly on future extension for any story roots individually or combined.

These preliminary findings suggested support for the hypothesis that the PA subtest of the WAIS is, in part, a measure of anticipation. It was difficult, however, to generalize on the basis of this sample because the subjects were a select sample having been chosen from the highest and lowest quartiles on a measure of death concern and furthermore, the subjects were all male college students of high intelligence. Because of the limitations on generalization imposed by the nature of the sample and the question raised by a significant difference between the High and Low PA groups on Vocabulary, a second test of the hypothesis was undertaken with a different sample.

METHOD

Test records of adult patients having conspicuously high or low PA scores were selected by an independent judge from clinical files. The criterion for the selection of records for the High PA group was a PA scaled score that was either the highest or second highest sub-

test of the WAIS, and the converse criterion was used to select the Low PA group. The subjects were selected so that the groups were matched on age and on Verbal and Full Scale IQs and included hospitalized and clinic psychiatric patients who varied in diagnosis from neurosis through psychosis but none of whom showed evidence of organically based difficulties. Eighteen records with high PA scores (eight males and ten females) and 18 with low PA scores (eight males and ten females) were chosen, yielding a total of 36 records.

As part of the clinical battery, all Ss had been given the WAIS and most of the subjects had been given all of the following TAT cards in the same sequence: 1, 5, 15, 14, a line drawing of two old men from the original Murray series, 10, the Picasso "La Vie" card from the original Murray series, 13 MF, and 12 M. Prospective and retrospective span scores for the TAT stories were obtained using the scoring system developed by Epley and Ricks (1963).² In this scoring system, the story told to each card is rated for prospective and retrospective span on a ten point scale. The scale is as follows:

1. Span less than hour.
2. Span greater than hour, less than day.
3. Span greater than day, less than week.
4. Span greater than week, less than month.
5. Span greater than month, less than half year.
6. Span greater than half year, less than year.
7. Span greater than year, less than four years.
8. Span greater than four years, less than decade.
9. Span greater than decade, less

than life (career).

10. Life Span".

(Epley & Ricks, 1963)

The same scale is used for both prospective and retrospective span. For stories with a time span exactly at the border between scale values (e.g., exactly one month), the convention was adopted of scoring the story at the higher value. The scale also contains a zero score for a lack of time span when the story does not extend beyond the present moment.

Stories are only scored for prospective and retrospective span if a person or group performing realistic acts is portrayed. Consequently, some of the stories told by subjects were unscorable. The average number of scorable stories was 6.1 for the High PA male group, 5.3 for the High PA female group, 5.1 for the Low PA male group, and 7.0 for the Low PA female group. Prospective and retrospective span were scored without knowledge of the WAIS scores of the subjects. A mean prospective span score and a mean retrospective span score was obtained for each subject based upon all scorable stories. Epley and Ricks (1963) report inter-rater reliability coefficients of .66 for prospective span and .74 for retrospective span with an N of 23. Nine of the 36 TAT protocols of the present study were selected at random and scored by a second rater and this provided some additional data on the reliability of the scoring system. The product moment correlation between the two scorers for prospective span (N=9) was .872, while the product moment correlation between the two scorers for retrospective span (N=9) was .916. Both correlations are significant at the .01 level, two tailed. The difference between the High and Low PA groups on prospective span was evaluated by the *t* test for independent groups.

RESULTS

The mean age, WAIS Verbal, Performance and Full Scale IQs and prospective and retrospective span scores are presented in Table 1. There were no significant differences between High and

² Some of the patients had not been given all of these nine cards. The average number of cards administered was 8.8 for the High PA male group, 8.3 for the High PA female group, 8.6 for the Low PA male group, and 8.7 for the Low PA female group.

Low PA groups in age, or in WAIS Full Scale or Verbal IQs. Since Ss were selected on the basis of high and low scores on one of the Performance scales, it was expected that the High PA group would have a higher Performance IQ. The two groups did differ significantly on Performance IQ and this difference was due primarily to the difference between the groups on the PA subtest. The only Performance subtest on which the High and Low PA groups differed significantly was Picture Arrangement. On the Verbal subtests, the only significant difference was on Vocabulary with the Low PA group having a significantly higher Vocabulary score than the High PA group. This difference, however, could not account for findings which would support the hypothesis that PA is a measure of future extension for, if anything, one would expect the group with the higher Vocabulary score (the low PA group) to manifest a longer prospective span.

As presented in Table 1, there were no significant differences between the High and Low PA groups on retrospec-

High PA Ss ranged in average prospective span score from .50 to 8.80 with an average prospective span between one day and one week (scaled score of 3.22). The range of average prospective span scores for Low PA Ss was from .00 to 3.57 with a mean of 1.76 which is less than one hour. To state the difference between high and low PA Ss somewhat differently it may be helpful to note that 8 of the 18 high PA Ss had an average prospective span score of 3 or greater while only 2 of the 18 Low PA Ss had scores of 3 or more. To illustrate this difference, stories told by 2 high PA Ss and 2 Low PA Ss to Card I of the TAT are presented below:

High PA:

W. - a 22 year old male college student, inpatient.

Card I - 20³ This is a kid who has been brought up from birth to try to become a musician. He has been sort of ingrained with the idea that he should become a, well, great violinist. His present reactions are that he's confused as to whether he should or not. Eventually

Table 1—Mean Age, WAIS Verbal, Performance, and Full Scale IQs, and Prospective and Retrospective Span Scores of High and Low P.A. Groups

	Mean		t (df=34)	p (1 tailed)
	High PA (N=18)	Low PA (N=18)		
Age	22.2	25.1	1.19	N.S.
WAIS				
Verbal IQ	111.4	115.0	.80	N.S.
Performance IQ	113.3	102.7	2.90	<.01
Full Scale IQ	112.9	110.3	.61	N.S.
PA Scaled Score	15.39	7.94	---	<.01
Time Span				
Prospective	3.22	1.76	2.47	.012
Retrospective	2.73	2.35	.71	N.S.

tive span. The groups did differ, however, on prospective span. The mean prospective span score for the total High PA group was 3.22 while the mean prospective span score for the total Low PA group was 1.76. This difference is significant at the .012 level, one tailed.^{3,3}

he will destroy the violin, go into a bar and become a honkey-tonk player. What else do you want on this? (2'15") (How is he feeling?) He, at the present

³ Differences between the High and Low PA groups approached significance in both the female (p=.071, one tailed) and male sample (p=.057, one tailed).

time, he sort of despises the thing but feels he should because his parents tell him he should.

Prospective span score = 9

B. - 22 year old pregnant, unmarried art student, inpatient.

Card I - 25" A young gentlemen who was given violin by parents because they were very musical people. He spent lots of time learning to play, he likes it—he's at a point where he's played so many pieces so many times that he wants to compose some pieces of his own. Sitting with eyes closed, thinking what he's gonna compose. Then (Smiles) goes out and becomes very famous composer with lots of success and glory and money—It's hard with picture in front of you—you tend to think of picture as climax of story. (2'15") I hate pictures like that (?) It's real sweet . . . (Boy feel here?) Thinking about at this point . . . he's composing first tune in his head, very involved in the feeling of music and naturally thinking about it.

Prospective span score = 9.

Low PA

H. - 23 year old male, inpatient.

Card I - 10" Coughs. 40" Apparently here is a young boy who has been presented with a violin some time ago by his parents . . . and has been taking lessons on the violin and has probably been teased by his friends on the fact that he's taking violin lessons . . . and has been told he has to practice a certain amount of time each day on the violin, and from the dubious way he's looking at the violin . . . the weather outside has been too nice to spend in practicing on an instrument . . . and before too long some friends will appear at the door or the window and cajole him with very little effort to join them in a game of baseball. He will do this if no one is home.

Prospective span score = 1.

N. - a 43 year old married female out patient.

Sort of like boy who is taking violin lessons. Mother just scolded for not

studying and he's bored with whole thing. He seems—didn't seem too happy about it — probably grows up not liking music.

Prospective span score = 0.

In the study of Epley and Ricks (1963) a significant correlation of .44 was obtained between prospective and retrospective span. In the present study, however, the correlation between prospective and retrospective span was different in the High and Low PA groups. The product moment correlation between prospective and retrospective span was .700 ($p < .01$, two tailed) for the High PA group and only .186 (N.S.) for the Low PA group.⁴ The difference between these correlations approached significance ($p = .063$, two tailed).

DISCUSSION

The results of the present study, as well as the findings of the pilot study, offer support for the hypothesis that the Picture Arrangement subtest of the WAIS is a measure of the capacity for anticipation and planning. This finding is of significance in view of the importance of anticipation as an ego function. Arieti (1947) points out that anticipation, "is the capacity to foresee or predict future events even when there are no external stimuli which are directly or indirectly related to those events" (p. 471). He notes that the majority of man's actions are directed by anticipation. Similarly, Hartmann (1958, p. 43) writes, "The reality principle . . . implies something essentially new, namely, the familiar function of anticipating the future, orienting our actions according to it, and correctly relating means and ends to each other." Anticipation is the central mediator of goal directed purposeful behavior and it is of great value to have a non-verbal measure of this function. It is relevant to note that the pilot study and present study included male and female subjects, of high

⁴ If High and Low PA groups are combined and treated as a single sample, the correlation between prospective and retrospective span is .544.

and average intelligence, from normal and clinical populations. Thus, the interpretation of the PA subtest as a measure of anticipation appears to be relevant to a wide range of populations. It must be noted, however, that in both studies the subjects were primarily young adults and future investigation is necessary for confirmation of the hypothesis with an older sample and with children.

The significant correlation between prospective and retrospective span in the present study and in the study of Epley and Ricks (1963) suggests that there might be a general dimension of time perspective extending into the past as well as into the future. Alternatively, the significant correlation might reflect common method variance. However, the difference between the correlation of prospective and retrospective span in the High and Low PA groups approaches statistical significance. The low correlation between prospective and retrospective span in the Low PA group may be a function of the restricted range of scores these subjects obtain on these variables. In any event, the differences between the correlations of prospective and retrospective span in High and Low PA groups suggests that organization of temporal parameters may have important individual variations, and this may be an important area for subsequent research.

In the pilot study, differences in extension between the High and Low PA groups were much more prominent for stories three and four than for stories one and two. Wallace (1956) has pointed out that stories three and four are much less structured than are stories one and two. Consequently, they would seem to provide a more valid measure of personal extension. Again, more research is necessary to clarify the differences between future extension measured by roots one and two, and future extension measured by roots three and four.

Recent research with measures of future extension suggest that time perspective is a dimension of motivational

and affective as well as cognitive significance. Thus, Dickstein and Blatt (1966) found that students who were highly concerned with death scored significantly lower on a measure of future extension and on the PA subtest than students with little concern about death. Epley and Ricks (1963) found that students with high prospective span showed less anxiety and were more empathic than students with short prospective span. These results are promising and suggest the need for more research on future extension and on temporal parameters generally, for there is suggestion from a number of different vantage points that the perception, utilization, and representation of time may be a central dimension in personality organization.

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Children's Preferences for Humanized Versus Natural Animals¹

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Summary: Children's responsiveness to animal drawings led to the theory that they identify more closely with animals than with humans. Werner's (1948) theory suggests, however, that children may identify equally with humans or animals until they become aware that animals are not appropriately personalized. To determine the development of emotional responses to personalized animals, a matched-pair set of drawings (each set comparing a natural versus a humanized animal) were administered to 377 children, aged 6 to 12. Preferences elicited resulted in random distributions of scores from age 6 through age 9. At age 10 (and after) a "J" curve distribution of scores developed. From the age of 10, a majority of children preferred the natural animals while a few dissidents preferred the humanized animals.

The capacity of humans to project human social dynamics into animal life has been used as a basis for developing stimulus material to study personality in children. Bellak (1954) in developing the Children's Apperception Test (CAT) assumed that "... children identify themselves much more readily with animals than persons" ... (and that) "... animals might be preferred identification figures from three years up to possibly ten." The CAT consists of pictures of animals, some of which are depicted in human activities. Because of the postulated closer identification with animals, Bills (1950) hypothesized that children would tell longer stories to the CAT stimuli than to the human stimulus figures in the Thematic Apperception Test. His results were viewed as supporting Bellak's hypothesis. However, Bellak and Hurvich (1966) reviewed eleven studies comparing animal and human stimuli, conducted between 1950 and 1962, and they concluded that, "Some outcomes favored the animal figures, while an even larger number favored the human stimuli"; because of these results they developed a new form of the CAT with human figures.

A somewhat different approach to the meaning of animal life in human devel-

opment is presented by Werner (1948). He cautions that, "One speaks too readily of the anthropomorphism of the child", and limits anthropomorphism to those cases where a conscious polarity exists between "the personal and the impersonal", i.e., human beings versus other animals and things. Werner then proposes a more primitive and basic psychological process, that of "physiognomic perception", in which no distinction is made between humans, animals or objects. The young child, subject to this basic process, is free to personalize, "dynamize", and therefore to identify with animals or objects. With the development of a differentiation as to what is properly personalized, and can be treated dynamically, the child would begin to reject animals as identification figures. Identification with humans would thus be enhanced due to a limitation of other potential sources of identification. Thus animals would not be preferred identification figures but equivalent identification figures until the age when the criteria for proper personalization develops.

When do the personal and the impersonal become emotionally distinguished? Bellak (1954) suggests that after the age of 10 animal figures may be reduced in value as projective test stimuli. Is this due to a relegation of these figures, after age 10, to the realm of the impersonal, therefore making them im-

¹ This study was supported in part by a grant-in-aid from the graduate school, Oregon State University.

proper identification figures? In order to provide controlled stimulus conditions to study this phenomenon a matched-pair set of animal drawings was developed, each pair consisting of an animal engaged in a human activity and the same kind of animal in a natural pose. Using these stimuli the present study was designed to test whether children respond systematically to improperly personalized animal figures, and if so, what developmental trends exist.

METHOD

Subjects

377 children, aged 6 to 12, attending a public elementary school in a small western community (Independence, Oregon) served as subjects. The sample consisted of all students in attendance on the days the tests were administered.

Assessment Materials

Sixteen pairs of 8½" by 11", black on white, drawings were developed. In any given pair, the same animal (e.g., bear, mouse, rabbit, lion, etc.) was engaged in a natural activity in one drawing and in a human activity in another.²

Procedure

Subjects were called from their classroom activities one at a time and were told, "I'm going to show you some drawings, two at a time, and I want you to point to the one you like the best." Total testing time per child was approximately two minutes.

Scoring

The number of natural animal drawings preferred was taken as the final score for a given subject. This score thus ranged from 0 to 16 with the higher score indicating greater preference for the natural drawings.

Additional data

Sex and chronological age at the time of testing were also obtained.

RESULTS

Initial perusal of the distributions of test scores revealed some extreme skewing. Because of this, non-paramet-

ric tests (Siegel, 1956) were used to analyze the basic data. To test whether the distribution of scores at each age level differed systematically from a random distribution the Kolmogorov-Smirnov One Sample Test was used. The null hypothesis was accepted at ages 6, 7, 8, and 9, and rejected at ages 10, 11, and 12, (.01 level of significance). Using the Kolmogorov-Smirnov Two Sample Test, it was found that ages 6, 7, and 8 did not differ among themselves nor did ages 10, 11, and 12 differ among themselves, but ages 6, 7, and 8 all differed significantly (at the .05 level) from ages 10, 11, and 12. Age 9 appeared to be a transitional age as the distribution of scores at this age did not differ from the distributions of 6, 7, 8, or 10-year-olds, but did differ from those of 11 and 12-year-olds (.05 level). Thus we find that children, as a group, show only a random pattern of responses to these animal drawings until the age of 10 when they shift to a systematic pattern of responding.

The only difference between sexes, compared at each age level, was at age 6 (a Median Test difference significant at the .05 level). The author finds himself at a loss to explain this difference.

Once active, the pattern of emotional responses results in an extreme skewing of test scores, as shown in Table 1. This distribution resembles the classical "J" curve of conformity behavior. The me-

TABLE 1

Distribution of scores for ages 10, 11, and 12

Score	N
15-16	76
12-14	21
9-11	16
6-8	7
3-5	9
0-2	24

dian score falls at 14 (out of a possible 16) preferences for the natural animal figures. The number of scores falls off in the middle of the distribution and then rises mildly at the personalized end

² Copies of these drawings may be obtained for research purposes from the author.

of the scale. This rise in preference for improperly personalized animals would seem to indicate the presence of individual differences in preferences rather than the presence of random responses. Hence, when children begin to display preferences most of them show a swing toward natural animal preferences with a few dissidents preferring personalized animals.

Discussion and Conclusions

Werner's (1948) hypothesis of "physiognomic perception" as the absence of an emotional distinction between the personal and the impersonal, would certainly seem to be supported by the data up to age 10. At this age there emerges, among children as a group, an emotional response to improperly personalized figures. Once this distinction occurs most children reject the improperly personalized figures, though a few retain an emotional preference for them. Hence, up to age 10 responses to projective test stimuli would be due to the dynamic themes suggested by the stimuli rather than to the natural or non-natural aspect of the stimuli.

The "J" curve nature of reactions after age 10 certainly leads one to question the meaning of the individual differences. Why some children are non-conforming in preferring the improperly personalized figures is not known. One could hypothesize that certain children refuse to accept the limitations of appropriate personalization, thereby re-

taining the right to identify with a wide range of figures—not just humans. This could be on the basis of a continued need for enrichment, as a creative child might be motivated, or on the basis of a discomfort with human identification figures, as some emotionally disturbed children might be motivated, or on the basis of a need to give dissident test responses, as a rebellious child might be motivated. Further research on the range of available figures used for identification is certainly needed to clarify this area. At this point we can only say that, after age 10, a preference for improperly personalized figures is nonconforming.

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Interjudge Agreement of Draw-A-Person Diagnostic Impressions^{1,2}

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Summary: The interjudge agreement of Draw-A-Person (DAP)-based diagnostic impressions was assessed. Twenty-four psychologists were asked to categorize 48 DAP protocols as being the productions of organics, paranoid schizophrenics, non-paranoid schizophrenics or normal controls. The mean between-judges proportion of agreement was only .41 and the mean proportion correct was a mere .28. (A proportion of .25 could be anticipated in each case by chance.) Strength of interjudge agreement did not vary with the extent to which judges utilized the test but did seem dependent upon the subjects' diagnoses. The results indicated that diagnostic impressions based on the DAP alone seem to be neither usefully valid nor impressively consistent across psychologists. It is suggested that the profession is due for a re-evaluation of its DAP training techniques and its use of the test.

BACKGROUND

The ability of psychologists as a whole to render accurate diagnoses from Draw-A-Person (DAP) analysis has been subjected to considerable scrutiny. By and large, these efforts have indicated that the ability of psychologists to improve upon chance in their DAP diagnoses is slight (Whitmyre, 1953; Sherman, 1958; Griffith & Peyman, 1959; Stoltz & Coltharp, 1961; Schaeffer, 1964; Watson, in press). Although a few encouraging results have appeared (e.g. Holzberg & Wexler, 1950; Hozier, 1959), there is reason to believe that they may be due to confounding with age or IQ (Lewinsohn, 1965). The discouraging nature of these results indicates that further exploration of the diagnostic habits of DAP users is in order. The present project was formulated to study inter-psychologist agreement and its implications for DAP diagnosis.

As part of a previous project (Watson, in press), 24 psychologists were asked to report their diagnostic impressions for each of a set of 48 DAP protocols. Of the 48, 12 each were produced by normals, cerebral-lesion brain-damaged patients, paranoid schizophrenics and "non-paranoid" schizophrenics. The judges were stratified by level of experience with the test (ten users, ten non-users, four projective test experts) and all were informed of the diagnostic composition of the sample. In that study, the

overall mean number of correct "hits" was 13.46 per judge, a significant, but very slight, improvement over chance (12), indicating that DAP-based diagnostic impressions are probably actually detrimental to overall diagnostic accuracy except in those rare settings where base rate frequencies of the various nosological groups are essentially identical (Meehl & Rosen, 1955).

Two explanatory hypotheses follow from this and similar discouraging negative results.

1. *Low inter-psychologist agreement.* Psychologists disagree as to the diagnostic implications of various DAP signs and, as a result, do not concur on the diagnoses to be affixed. In other words, the interjudge agreement of DAP diagnos-

¹ This project was supported by the VA Psychiatric Evaluation Project, Lee Gurel, Director. The assistance of Shirley Taufen, Kathleen Schelonka, and Catherine Tidd in the preparation of this paper is also gratefully acknowledged.

² The contributions of those who volunteered as judges merit individual acknowledgment. They include Drs. Gordon F. Derner, Murray J. Lonstein, Helen K. Pancerz, Gordon J. Polder, Robert Swanson, Norman Tallent, Richard W. Thomas, Jerry Tomlinson, Robert Tucker, and Charles Van Buskirk (users); Drs. William H. Colley, Edward M. Ells, Warren Freiband, William G. Klett, Leonard Lipton, Patrick E. Logue, Gordon W. Olson, Vinton N. Rowley, Anthony B. Tabor, and Albert E. Uecker (non-users); Drs. Max L. Hutt, Bruno Klopfer, Pauline G. Vorhaus, and Karen Machover (experts).

tic impressions is low, and the diagnostic accuracy of psychologists as a whole is necessarily handicapped. In this event, an implication would seem to be that a major training problem is that psychologists are not learning to use DAP's in a uniform manner.

2. *Low DAP sign validity.* Psychologists agree as to the significance of various DAP signs and generally concur with one another with respect to DAP diagnostic hunches, but the signs utilized are of low validity and very often lead to erroneous diagnostic choices. Thus it follows that a major problem in DAP training lies in the inaccurate, albeit uniform, teaching of such diagnostic signs.

Because of the immense popularity (Sundberg, 1961) of the test, the present study was developed to consider the interjudge agreement of DAP-based diagnostic impressions.

PROCEDURE

Judges. Twenty-four judges were studied. Of this group, ten were clinical psychologists who reported that they use the DAP; of the ten, nine indicated that they used it regularly while one reported employing it only on an occasional basis. These judges were termed "users" for purposes of this study. A second group consisted of ten clinicians who stated that they do not use the test at all, although they may have done so at one time ("non-users"). All users and non-users were acquaintances of the author or were individuals recruited at the suggestion of third parties. A third group of four judges consisted of individuals who had established themselves as experts in the field of projective techniques through their extensive writings. None was personally known to the author and all were volunteers approached by mail. During the study 21 potential projective test experts were approached, of whom 17 declined to participate. Therefore, this sample should not be considered a random sample of projective test experts. Furthermore, only one of the four made his reputation with figure drawings and, although the projective test expertise of

the remaining three is unquestioned, the sample ought not be misconstrued as a DAP expert group.

Drawings. Four sets of 12 drawings each were employed. Thirty-six were products of neuropsychiatric patients at the Veterans Administration Hospitals, Knoxville, Iowa, and St. Cloud, Minnesota. Of these 36, 12 were men diagnosed Chronic Brain Syndrome who showed strong clinical and/or laboratory evidence of cerebral lesions. Etiological variables associated with organicity were trauma (six cases) and alcoholism, infection, Alzheimer's disease, Wilson's disease, idiopathic epilepsy and epilepsy with temporal lobe resection (one each). Twelve Ss bore the diagnosis Paranoid Schizophrenic and another dozen were patients diagnosed schizophrenic but not labeled paranoid ("non-paranoid schizophrenics"). The remaining 12 were produced by full-time employees of the Housekeeping Department at the St. Cloud VA Hospital who had volunteered to serve in this project. (Housekeepers were selected because of the probability that, as a group, their vocational/socio-economic level would more nearly approximate that of the other three samples than any other available group.) All Ss were males under the age of 50 without history of lobotomy or more than 25 electroshock treatments. No member of the three clinical groups had ever borne a diagnosis suggesting he might be a candidate for one of the other two samples. Hospital personnel records indicated that only one of the housekeepers had a history of mental illness; he had been hospitalized for six weeks more than 12 years prior to the collection of the data and it appears that the mental health credentials of the controls compare favorably with those of the population as a whole.

The four groups did not differ significantly at .05 with respect to mean age ($F=1.41$; $df=3, 44$; $M=37.2$) or Revised Beta IQ ($F=2.39$; $df=3, 44$; $M=97.2$) and the three clinical samples did not differ on mean length of psychiatric hospitalization ($F=2.66$; $df=2, 33$; $M=33.2$ months). However, the F for education

level (2.94; $df=3, 44$) was significant at .05, the group means being 11.1, 10.8, 10.9 and 8.8 for the organics, paranoids, non-paranoids and normals respectively.

A male and female figure drawing (one each) were elicited on unlined white 8"X10" paper, one drawing to a sheet. For presentation to the judges, Ss' names were covered with masking tape. On each drawing, the author penciled in Ss' randomly assigned serial number, the sex of the figure (as reported by S) and whether the production was the first or second drawn. Judges were informed that, of the 48 drawings, 12 each were produced by patients diagnosed Chronic Brain Syndrome, Paranoid Schizophrenic, and "non-paranoid" Schizophrenic and that the remaining dozen were drawn by full-time hospital housekeepers. The judges were asked to sort the protocols into equal-sized groups corresponding to the categories above.

Agreement proportions. Proportion of agreement between each of the pairs of judges within each experience/expertise level was calculated separately for each of the four diagnostic groups. No across-levels (*e.g.*, users *vs.* non-users) proportions were computed. Within each diagnostic group, it was possible to compare mean agreement proportions of the three judge levels. However, because be-

tween-diagnostic-group agreement proportions within judges were not independent (since judges knew there were 12 sets of drawings from each diagnostic group), statistical tests of these differences were not run.

RESULTS

Mean proportions of agreement are summarized in Table 1. It will be seen that the mean agreement proportion over all 384 pairs was about .41 while the mean proportion of correct diagnoses was only .28. A proportion of .25 would be expected by chance in each case.

Differences between the mean agreement proportions of the three sets of judges were also calculated separately for each diagnostic group. It was found that none of the four F 's (.03 for normals, 1.63 for paranoids, 1.38 for non-paranoid schizophrenics and .35 for organics, all df 's=2, 93) were significant, even at the .20 level. It appears that inter-judge agreement does not depend on psychologists' familiarity with, or use of, the test.

As is mentioned above, the interdependence of between-diagnostic-group observations precluded statistical evaluation of the hypothesis that agreement varies with diagnosis. However, mean agreement proportions did vary rather

Table 1—Mean Agreement Proportions and Proportions Correct

Judge level		Diagnostic group				
		(all n's = 12)				
		Normals	Paranoid Schizo phrenic	Non-paranoid Schizo phrenic	Organic	Total
Experts (k = 4)	Agreement	.362	.362	.392	.502	.404
	Correct	.167	.271	.250	.417	.276
Users (k = 10)	Agreement	.354	.448	.369	.450	.408
	Correct	.175	.367	.267	.283	.273
Non-users (k = 10)	Agreement	.348	.405	.422	.455	.408
	Correct	.183	.408	.208	.342	.285
Total	Agreement	.353	.416	.395	.461	.407
	Correct	.177	.368	.240	.330	.278

markedly between diagnostic groups, being highest for organics and quite low among the normal Ss. Furthermore, these differences were quite consistent across the three judge levels and it seems likely that they could be demonstrated statistically in a study of clinicians' functioning in non-laboratory tasks.

DISCUSSION

The results of the present study indicate that, even when base rate is known and the number of diagnostic foils is a great deal smaller than is the case in actual clinical practice, the agreement between psychologists making diagnostic evaluations from the DAP is discouragingly low. Thus, it appears that clinicians—DAP users and non-users alike—tend to disagree strongly as to the diagnostic implications or relative significance of the drawing characteristics they utilize in making diagnosis-oriented DAP interpretations. This finding complements those of Stoltz & Coltharp (1961) who reported low between-rater correlations on DAP-based ratings of sociability and emotional adjustment. It seems very probable that this reflects a wide diversity in the nature of current training insofar as this test is concerned.

It is also interesting to note that the correspondence of clinicians' diagnostic impressions to those of other psychologists was considerably higher than was that of their impressions to established hospital diagnosis. Although one might argue that this difference reflects the well-publicized unreliability of psychiatric diagnoses, the latter remains the "criterion of excellence" against which most clinicians pit themselves. Therefore, it seems more logical to view this disparity as an indication that psychologists are routinely giving certain signs invalid, albeit not totally unreliable, interpretations.

The results suggest that, at present, diagnostic implications based on the DAP

alone are neither usefully valid nor acceptably consistent across psychologists. This implies a need for further study of present modes of training psychologists in DAP diagnosis or possibly even a cessation of such activity. The results also indicate the profession's need for an honest re-evaluation of its use of the DAP as a source of diagnostic data.

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Anxiety Indexes in the Draw a Person Test; A Scoring Manual

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Summary: A scoring manual for anxiety indexes in the Draw A Person Test (DAP) was based, in part, on the work of Hoyt, and of Goldworth, with a number of additions and modifications by the author. Twenty indexes of anxiety were described. Alternative scoring procedures were suggested for some indexes. The scoring was based on both a four-point scale and a two-point scale. Interrater reliabilities ranged from .67 to 1.00.

One of the difficulties in doing research with the Draw A Person Test (DAP) is the lack of formal published scoring criteria. Even when a researcher devises a scoring manual, it is rarely included in the published article. The following manual for scoring DAP anxiety indexes is presented in an effort to remedy this situation, and thereby to perhaps stimulate additional objective DAP research. The author has drawn heavily from a thesis by Hoyt (1955) and from a dissertation by Goldworth (1950). The present scale is a modification and extension of both the Hoyt and the Goldworth scales.

A rough version of this manual was employed by Handler and Reyher (1964). In its present form the manual is similar to the one used in a later study by Handler and Reyher (1966). These, along with studies by Hoyt and Baron (1959), Mogar (1962), Jacobson (1966), and Nordquist (1966) indicate that the scale is a useful one in DAP research. Handler (1963) reports interrater reliabilities for the male drawing ranging from .67 to .98, with a median of .93, and for the female drawing, ranging from .73 to 1.00, with a median score of .83. Handler (1964) reports interrater reliabilities ranging from .67 to .97, with a median score of .87. Jacobson (1966) reports interrater reliabilities ranging from .79 to 1.00 with a median score of .88, while

Nordquist (1966) reports interrater reliabilities ranging from .79 to 1.00 with a median score of .91.

Concerning validity, Handler and Reyher (1964) found that 15 of 21 anxiety and conflict indexes significantly differentiated between stress and nonstress conditions for the male drawing, while 11 of 21 indexes significantly differentiated between the stress and nonstress conditions for the female drawing. Handler and Reyher (1966) reported that 10 indexes correlated significantly with either GSR frequency or mean conductance.

Traditional clinical interpretation suggests that the presence of shading, hair shading, erasure, reinforcement, placement in the upper left hand corner, and the presence of emphasis lines on the drawing indicate anxiety. However, three studies, (Handler & Reyher, 1964, 1966; Jacobson, 1966) have indicated that it is the *absence* rather than the presence of these indexes which is associated with anxiety. Handler and Reyher (1965), in a review of the literature, state:

"In regard to shading, hair shading, erasure, and reinforcement, the number of studies in agreement with traditional clinical interpretation is balanced by an equal or greater number of findings in the opposite direction, and an equal or greater number of non-significant findings. While this is not quite the case for placement, more than half of the findings for this index did not agree with traditional clinical interpretation. Some studies actually found significantly *less* shading, hair shading,

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erasure, reinforcement, placement in the upper left corner, and less emphasis line in situations where more was predicted" (p. 307).

Handler and Reyher (1964) also note that these indexes could represent an adaptive response to the task in an appropriate attempt to make the figures as true to life as possible and to give them substance. They seemed to denote adaptiveness, flexibility, and an appropriate reaction to a reality situation.

Consideration was therefore given to the possibility of reversing the scoring of shading, etc., so that a *lower* score (0 or 1) would then represent *more* anxiety than a higher score (2 or 3). This idea was rejected, however, since additional data needs to be collected on patient populations. The scoring will be revised at a later date should the outcome of studies on patient populations be consistent with the data collected on college males and females.

A problem exists concerning the denotation of the anxiety source. That is, do the indexes discussed in this manual concern anxiety stemming from externally induced stress situations or from intrapsychic sources. Existing data (Handler & Reyher, 1964) suggests that these indexes represent both external and intrapsychic stress. Handler and Reyher (1964, 1966) have demonstrated that the use of a more neutral control figure of equal task difficulty (an automobile) is effective in determining the source of the stress. For example, if the anxiety indexes are present in the figures, but not in the automobile drawing, the source of anxiety is not the testing situation, but stems from internal sources of conflict. Additional discussion of the automobile control figure in determining the anxiety source may be found in a study by Handler and Reyher (1964).

The manual is designed so that most of the indexes may be scored either 0, 1, 2, or 3. However, it is also possible to score each index simply as *present* (+) or *absent* (-). When a pair of drawings is being compared, it is possible to score (+), indicating *present more frequent-*

ly, or (-), indicating *present less frequently*. The choice of a scoring system would of course depend upon the design of the research.

While some indexes seem to be poor measures of anxiety, they have nevertheless been retained in the scale until more data is collected concerning their effectiveness in measuring anxiety. The scoring manual, along with associated reliability findings, is presented below.

Occasionally an alternative method is suggested for scoring an index. In most cases the alternative method was not employed in the construction of the scale.

Scoring Manual

I. Shading

Shading on any essential body area is scored. Essential body areas are as follows: 1. head (including facial features) 2. neck 3. one hand or both hands 4. one foot or both feet 5. one leg or both legs 6. one arm or both arms 7. trunk.

Hair is not scored here but is considered in a separate category. A design on clothing, e.g., cross-hatching, or any consistent pattern of lines is scored as shading. Facial markings which indicate the presence of a beard should be scored as shading.

Score 0 when there is no shading.

Score 1 when there is shading on any one body area.

Score 2 when there is shading on any two body areas.

Score 3 when there is shading on more than two body areas.

If plus and minus are used instead of the four point scale, score *plus* when there is shading on one or more body areas.

Interrater Reliability

.93 (Handler, 1963); .83 (Handler, 1964); .81 (Jacobson, 1966); .92 (Nordquist, 1966).

Alternative Approach

Shading may instead be scored according to the *total area* shaded.

Score 0 if less than one-quarter of the

drawing is shaded.

Score 1 if a quarter, but less than one-half of the drawing is shaded.

Score 2 if half, but less than three-quarters of the drawing is shaded.

Score 3 if three-quarters or more of the drawing is shaded.

II. Hair Shading

Hair Shading is scored according to a) amount of shading present, as well as b) heaviness of the shading.

Score 0 when hair is outlined but there is no shading, or when hair is omitted.

Score 1 when hair is partially shaded, e.g., small lines denoting hair or curls.

Score 2 when hair is completely but not heavily shaded.

Score 3 when hair is completely and heavily shaded.

If plus and minus are used instead of the four point scale, score *plus* if hair is partially shaded, moderately shaded, or heavily shaded (scores of 1, 2, and 3 respectively).

Interrater Reliability

.87 (Handler, 1963); .90 (Handler, 1964); .90 (Jacobson, 1966); .96 (Nordquist, 1966).

III. Erasure

An erasure on any essential body area is scored. Body areas are as follows: 1. head (including facial features) 2. neck 3. one hand or both hands 4. one foot or both feet 5. one leg or both legs 6. one arm or both arms 7. trunk.

Score 0 when there are no erasures.

Score 1 when there is erasure on any single body area.

Score 2 when there is erasure on any two body areas.

Score 3 when there is erasure on three or more body areas.

If plus and minus are used instead of the four point scale, score *plus* when two or more body areas are erased.

Interrater Reliability

.87 (Handler, 1963); .93 (Handler, 1964); .89 (Jacobson, 1966); .96 (Nordquist, 1966).

Alternative Approaches

1. The number of separate erasures in a drawing may be scored rather than scoring according to body area.

2. Erasure may also be scored according to the total area erased.

Score 0 if less than one-quarter of the drawing is erased.

Score 1 if a quarter, but less than one-half of the drawing is erased.

Score 2 if half, but less than three-quarters of the drawing is erased.

Score 3 if three-quarters or more of the drawing is erased.

IV. Reinforcement

Reinforcement consists of retracing of lines (lines that have been redrawn, or gone over). This does not include shading. Reinforcement is often confused with sketchiness of a line. Some subjects habitually draw using a sketchy line and therefore if most of the drawing is sketchy, Reinforcement should not be scored. In addition, lines that have been erased and redrawn with a single line are not scored as reinforced.

Score 0 if less than a quarter of the figure is reinforced.

Score 1 if approximately a quarter of the figure is reinforced.

Score 2 if approximately half of the figure is reinforced.

Score 3 if approximately three-quarters or more of the figure is reinforced.

If plus and minus are used instead of the four point scale, score *plus* if a quarter or more of the figure is reinforced.

Interrater Reliability

.94 (Handler, 1963); .77 (Handler, 1964); .79 (Jacobson, 1966); .83 (Nordquist, 1966).

Alternative Approach

A reinforcement on any essential body area is scored. The body areas are as follows: 1. head (including facial features) 2. neck 3. one hand or both hands 4. one foot or both feet 5. one leg or both legs 6. one arm or both arms 7. trunk. Score 0 if there is no reinforcement.

Score 1 if one body area is reinforced.

Score 2 if two body areas are reinforced.

Score 3 if three or more body areas are reinforced.

If plus and minus are used instead of the four point scale, score *plus* if there is reinforcement on one or more body areas.

V. Light Line and Heavy Line

These indexes should be considered separately from Light and Heavy Pressure, to be discussed later. The line quality of a drawing is scored according to the *predominant* (encompassing more than half of the drawing) type of line employed. Lines are scored as light-light (LL), light (L), medium-light (ML), light-medium (LM), medium (M), heavy-medium (HM), medium-heavy (MH), heavy (H), and heavy-heavy (HH).

Score 0 if the line quality is predominantly medium (M).

Score 1 if the line quality is predominantly medium-light (ML) or light-medium (LM).

Score 1 if the line quality is predominantly medium-heavy (MH) or heavy-medium (HM).

Score 2 if the line quality is predominantly light (L).

Score 2 if the line quality is predominantly heavy (H).

Score 3 if the line quality is predominantly light-light (LL).

Score 3 if the line quality is predominantly heavy-heavy (HH).

If plus and minus are used instead of the four point scale, score *plus* if the line quality is predominantly light (L), light-light (LL), heavy (H), or heavy-heavy (HH).

Interrater Reliability

Initially, Light Line and Heavy Line were scored separately. In this version of the manual, however, scores for both have been combined.

Light Line. .90 (Handler, 1963); .79 (Handler, 1964); .89 (Jacobson, 1966).

Heavy Line. .93 (Handler, 1963); .79 (Handler, 1964); .89 (Jacobson, 1966).

Light and Heavy Line Combined. .87 (Nordquist, 1966).

Alternative Approach

If a simpler scale is desired, the drawings may be scored either light (L), medium (M), or heavy (H).

VI. Placement

To score Placement, a transparent sheet of plastic should be divided into quarters, thus producing four quadrants equal in size. Quadrants are designated as 1) upper left 2) upper right 3) lower left 4) lower right.

Score 0 when the vertical axis of the figure is within one-half inch of the vertical axis of the transparent overlay, and when the horizontal axis of the overlay intersects the figure between the knees and the top of the shoulders.

Score 1 when the vertical axis of the overlay intersects the figure, but when the vertical axis of the figure is more than one-half inch away to the left or right of the vertical axis of the overlay, and the figure is not in any one quadrant.

Score 1 when the vertical axis of the overlay intersects the figure, but the figure is above or below the horizontal axis of the overlay, and the figure is not in any one quadrant. Head may extend above, or legs below the knees may extend below the horizontal axis.

Score 2 when the figure is completely in the left half of the page. Hands may extend over the vertical axis.

Score 2 when the figure is in any one quadrant except the upper left. Hands and feet may extend over the horizontal or vertical axes.

Score 3 when the figure is completely in the upper left-hand quadrant. Hands and feet *only* may extend over the horizontal or vertical axes.

If plus and minus are used instead of the four point scale, score *plus* if the drawing meets the criteria for a score of 2 or 3.

Interrater Reliability

.99 (Jacobson, 1966); 1.0 (Nordquist, 1966).

Alternative Approaches

The plastic overlay may instead be divided into eight equal sections, thereby allowing for more precise location of the figure. The upper sections would then be designated, reading from left to right: upper-left (UL), left-upper-middle (LUM), right-upper-middle (RUM), and upper-right (UR). The lower four sections would be designated, reading from left to right: lower-left (LL), left-lower-middle (LLM), right-lower-middle (RLM), and lower-right (LR).

Score 0 when most of the figure is located within the four center quadrants (LUM, RUM, LLM, RLM). The zero score should be reserved for figures that are approximately in the middle of these four quadrants.

Score 1 if most of the figure is located within either the area subtended by both quadrants LUM and LLM, or quadrants RUM and RLM. A score of 1 would be given, therefore, if the figure is slightly off center, either to the left or to the right.

Score 2 if most of the figure is located in any *one* section, except for sections UL and LUM.

Score 2 if most of the figure is located within sections UR and LR (both sections taken as a unit).

Score 3 if most of the figure is located either within section UL or LUM.

Score 3 if most of the figure is located within sections UL and LUM (both sections taken as a unit).

A third and perhaps more exact procedure for locating the position of a figure on a page was suggested in an article by Handler, Levine, and Potash (1965). The authors suggest measuring the distance from the top of the page to the topmost part of the drawing. The next step would be to measure the distance from the bottom of the page to the bottommost part of the drawing. The ratio between these two numbers would give the location along the vertical axis. A similar procedure may be used to determine the position of the figure along the horizontal axis. In either case a quotient of 1 indicates central placement, while a number smaller than 1 indicates

placement higher on the page, or placement toward the left. A larger number indicates placement lower on the page, or placement to the right. Handler, Levine, and Potash (1965) note that a composite score may be employed by differentially weighting and summing the two scores for each drawing, depending upon the hypothesis being tested. Thus, if one were testing the hypothesis that location in the upper left-hand corner indicates anxiety, smaller scores (scores less than 1) would be weighted more heavily than larger scores (scores of 1 or greater).

VII. Omission

Score if there is an omission of any essential body area or when the figure is placed so that one or more essential body areas has been cut off by the edge of the paper (Paper-chopping). Essential body areas are as follows: 1. head 2. one arm or both arms 3. one hand or both hands 4. one leg or both legs 5. one foot or both feet 6. trunk 7. neck 8. hair 9. each facial feature: a. eyes b. nose c. mouth d. ears, unless covered by hair e. eyebrows.

Score 0 if there are no omissions.

Score 1 if one body part is omitted.

Score 2 if two body parts are omitted.

Score 3 if three or more body parts are omitted.

If plus and minus are used instead of the four point scale, score *plus* if two or more body parts are omitted.

If arms or legs are omitted, hands and feet are also scored as omitted. If legs come to a point, feet are counted as omitted unless toes or shoes are indicated. Eyes do not have to be drawn in detail. If a profile drawing is being scored, do not score a body part as omitted if it would obviously not be seen in the profile view. A hand is considered as omitted unless fingers are indicated. In case of clenched fists, lines must show that fingers are present.

Interrater Reliability

.92 (Handler, 1963); .87 (Handler, 1964); .83 (Jacobson, 1966); .91 (Nordquist, 1966).

VIII. Small Size and Large Size

It is a relatively simple task to measure a symmetrically drawn figure, drawn with its axis perpendicular to the bottom of the paper. Difficulty is encountered, however, if the figure is asymmetrical, or if it is drawn off balance. Therefore, the following procedure for measuring the height of figure drawings was devised.

A. Locate the axis of the drawing running from the head to the feet of the figure. It will be necessary to estimate this line. It should conform as nearly as possible to the *midline* of the figure. The head, trunk, and legs should *all* be taken into account in locating the axis. Where the figure is curved, the axis should be placed at an angle approximating the drawing. After having located the axis, draw it through and beyond the figure.

B. Construct perpendicular lines from the axis to the highest and lowest points of the drawing. Hair, toes, heels, fingers, hands, or clothing, if found at one extreme or the other, should be included in the determination of the highest and lowest points of the drawing. Things other than parts of the body or clothing should not be included.

C. Measure to the nearest 16th of an inch the length along the axis between the perpendicular lines.

Score 0 if the figure is between 6 12/16 inches and 7 1/4 inches in size.

Score 1 if the size of the figure is 6 11/16 inches or less, down to but not including 5 1/2 inches.

Score 7 if the figure is between 7 5/16 and 8 1/4 inches in size.

Score 2 if size of the figure is 5 1/2 inches or less, down to but not including 4 1/2 inches.

Score 2 if the figure is between 8 5/16 and 9 1/4 inches in size.

Score 3 if size of the figure is 4 1/2 inches or less.

Score 3 if the figure is 9 5/16 inches in size or larger.

If plus and minus are used instead of the four point scale, score *plus* if the size of the figure is 5 1/2 inches or less, or 8 5/16 inches or greater in size.

Interrater Reliability

No reliability data was calculated for this index in either of the studies by Handler and Reyher. However, preliminary data collected for another research project indicates that using the above directions, raters typically differ in their measurements by no more than 1/16 of an inch. This suggests that the resulting interrater reliability will be quite high. Both Jacobson (1966) and Nordquist (1966) report interrater reliabilities of 1.0.

Alternative Approach

If a comparison between two drawings is to be made, e.g., male drawing compared with female drawing, or drawing obtained in situation "A" compared with drawing obtained in situation "B", the following scoring criteria may be used:

Score 0 if there is no difference (increase or decrease) in size between the two drawings, or if the difference is no greater than a quarter of an inch.

Score 1 when there is a difference (increase or decrease) in size up to and including 1/2 inch between the two drawings.

Score 2 when there is a difference (increase or decrease) in size of more than 1/2 inch, up to and including one inch between the two drawings.

Score 3 when there is a difference (increase or decrease) in size of more than one inch between the two drawings.

If plus and minus are used instead of the four point scale, score *plus* (if there is a difference in size of more than 1/2 inch between the two drawings.)

IX. Small Head Size and Large Head Size

Length of the head is measured to the nearest sixteenth of an inch, from the top of the head to the bottom of the chin. If the figure is drawn wearing a hat, draw the line extending and completing the head outline as if the hat were transparent, and the head showed through the hat.

Score 0 if the length of the head is between 15/16 and 1 1/8 inches.

Score 1 if length of the head is between 7/8 and 5/8 inches.

Score 1 if length of the head is between 1 3/16 and 1 3/8 inches.

Score 2 if length of the head is between 9/16 and 3/8 of an inch.

Score 2 if length of the head is between 1 7/16 and 1 5/8 inches.

Score 3 if length of the head is less than 3/8 of an inch.

Score 3 if length of the head is more than 1 5/8 inches.

If plus and minus are used instead of the four point scale, score *plus* if length of the head is 9/16 of an inch or smaller, or 1 7/16 inches or larger.

Interrater Reliability

Reliabilities were not computed for Small and Large Head Size in the two studies by Handler and Reyher.

.99 (Jacobson, 1966); 1.0 (Nordquist, 1966).

X. Head: Body Ratio (Proportion of Head to Body)

This variable is scored by a) measuring the length of the head to the nearest sixteenth of an inch b) measuring the length of the entire figure to the nearest sixteenth of an inch, and c) computing the relative size by dividing the head size by the body size.

Score 0 when the obtained quotient is below .143.

Score 1 when the quotient is between .144 and .194.

Score 2 when the quotient is between .195 and .245.

Score 3 when the quotient is greater than .245.

If plus and minus are used instead of the four point scale, score *plus* if the quotient is .195 or greater.

Interrater Reliability

.98 (Jacobson, 1966); 1.0 (Nordquist, 1966).

XI. Transparency

Transparency is scored when a body area which ordinarily would not show

through clothing, or through another body area placed in front of it, is visible (e.g., legs showing through skirt or trousers, body showing through arm area).

Score 0 if there are no transparencies in the drawing.

Score 1 if one transparency is present.

Score 2 if two transparencies are present.

Score 3 if three or more transparencies are present.

If plus and minus are used instead of the four point scale, score *plus* if the drawing contains one or more transparencies.

Interrater Reliability

.97 (Handler, 1963); .97 (Handler, 1964); .80 (Jacobson, 1966); .91 (Nordquist, 1966).

XII. Delineation Line Absence

This index refers to the absence of lines on the body which divide it into various areas (e.g., cuff lines on shirt, jacket, or trousers; line indicating belt; line indicating collar). The extreme is a figure which is merely an outline, or a shell. The drawing should be scored for the presence of: 1. sleeve cuffs or armhole 2. neckline 3. belt line (for male drawing only) 4. trouser cuffs or skirt hem. If a body area containing a delineation line is omitted, *do not* score that delineation line as absent.

Score 0 if no delineation lines are absent.

Score 1 if one delineation line is absent.

Score 2 if two delineation lines are absent.

Score 3 if three or more delineation lines are absent.

A stick figure is scored 3 since it contains no delineation lines.

If plus and minus are used instead of the four point scale, score *plus* if one or more delineation lines is absent.

Interrater Reliability

.80 (Handler, 1963); .90 (Handler, 1964); .88 (Jacobson, 1966); .83 (Nordquist, 1966).

XIII. Vertical Imbalance

This index may be scored with a protractor, as the angle the midline of the drawing makes with the bottom of the paper. The readings are made in degrees. Place the edge of the protractor along the bottom edge of the paper, and note the deviation of the midline (drawn for size determination) from the zero degree marking.

Score 0 if the figure is in an upright (i.e., no more than a 2 degree tilt) position, and is parallel to the left and right edges of the paper.

Score 1 if the figure is slightly off balance (i.e., a tilt of between $2\frac{1}{2}$ and $8\frac{1}{2}$ degrees) to the left or to the right.

Score 2 when the tilt is marked (i.e., between 9 and 17 degrees) to the left or to the right.

Score 3 when the figure is tilted more than 17 degrees to the left or to the right.

If plus and minus are used instead of the four point scale, score *plus* if the tilt is $2\frac{1}{2}$ degrees or greater.

Interrater Reliability

.70 (Handler, 1963); .90 (Handler, 1964); .96 (Jacobson, 1966); .87 (Nordquist, 1966).

XIV. Emphasis Line

This index should not be confused with shading. Emphasis Line refers only to a line or series of lines drawn to emphasize specific body areas, or lines drawn to give the figure a three-dimensional quality. Thus, while cross-hatching on the skirt is scored as Shading, lines indicating pleats or folds in the skirt would be scored as Emphasis Line. Similarly, while markings on the face to indicate a beard would be scored as Shading, marks which indicate a dimple, facial crease or fold, chin, furrows in the forehead, etc., are scored as Emphasis Line.

Score 0 when no emphasis lines are present.

Score 1 when 1 or 2 emphasis lines are present.

Score 2 when 3 emphasis lines are present.

Score 3 when 4 or more emphasis lines are present.

If plus and minus are used instead of the four point scale, score *plus* if three or more emphasis lines are present.

Interrater Reliability

.80 (Handler, 1963); .91 (Handler, 1964); .83 (Jacobson, 1966); .79 (Nordquist, 1966).

XV. Line Discontinuity

Line Discontinuity refers to the frequency of broken lines used in the drawing, and to the spaces left between various body parts. On *very close inspection* these body parts may appear to be unconnected. A line discontinuity is scored if it is possible to go from the outside of the body wall to the inside of the body wall without *crossing* a body line. If the drawing is done with a sketchy line it is difficult to determine whether Line Discontinuity is to be scored. Line Discontinuity should *not* be scored if, despite the sketchiness, it is impossible to go from the outside of the body wall to the inside without crossing a body line.

Score 0 if there are no more than three line discontinuities in a drawing.

Score 1 if four or five line discontinuities are present.

Score 2 if six, seven or eight line discontinuities are present.

Score 3 if nine or more line discontinuities are present.

If plus and minus are used instead of the four point scale, score *plus* if there are four or more line discontinuities in the drawing.

Interrater Reliability

.97 (Handler, 1963); .67 (Handler, 1964); .86 (Jacobson, 1966); .87 (Nordquist, 1966).

XVI. Distortion

This index refers to either size (proportion) distortion, or to oddly shaped body parts.

Score 0 if the drawing is well-proportioned, and if the body parts are not oddly shaped.

Score 1 if one or two body parts are out of proportion, but not to any great extent, or if one or two body parts are slightly misshapen.

Score 2 if approximately half the drawing is out of proportion, and/or distorted.

Score 3 if more than half of the figure is out of proportion or oddly shaped.

If plus and minus are used instead of the four point scale, score *plus* if one or more body parts is out of proportion, or if one or two body parts are slightly misshapen.

Interrater Reliability

.77 (Handler, 1963); .82 (Handler, 1964); .82 (Jacobson, 1966); .91 (Nordquist, 1966).

XVII. Head Simplification

This index resembles an "accuracy" or "developmental" score, somewhat like the scoring approach in the Good-enough Draw-A-Man Test. In a well executed drawing the shape of the head is oval, the mouth is drawn with at least two lines, the eyes are almond shaped and some effort is made to indicate the presence of a chin. A high score on Head Simplification would be earned if the head is shaped more like a circle, if the eyes are indicated by dots or circles, if the nose is indicated by dots, circles, or a single line, if the brows are indicated by a single line, and if the ears, if evident, resemble circles that appear "stuck on."

Score 0 when the head has a somewhat oblong shape, with some three-dimensional quality or substance. The features should be fairly well-placed.

Score 1 when the features are still well-placed and the head has somewhat of an oblong shape, as above, but when the figure lacks substance, or three-dimensionality.

Score 2 if the head is less oblong than round, beginning to resemble the simple circle, or if the features are represented by simple lines rather than by contours. For example: a mouth represented by a single curved line; the eyes by simple circles or dots; the brows either absent or

represented by simple lines; the nose represented by two dots, one dot or a single line; the ears represented by circles, rather than being oblong; the hair appearing "attached" rather than appearing as part of the head.

Score 3 if the items mentioned above are present in the extreme.

If plus and minus are used instead of the four point scale, score *plus* if the drawing meets the criteria for a score of 2 or 3.

Interrater Reliability

.80 (Handler, 1963); .86 (Handler, 1964); .88 (Jacobson, 1966); .88 (Nordquist, 1966).

XVIII. Body Simplification

This index should not be confused with Distortion. Body Simplification, like Head Simplification, above, is more of an accuracy score.

Score 0 if a) the trunk is well proportioned b) the waist is narrower than the chest c) the body has a three-dimensional quality, and d) the arms are appropriately placed on the body.

Score 1 if all of the above is present, but the three-dimensional quality is missing, and/or if the proportions are not quite good enough to earn a score of zero.

Score 2 if the chest, buttocks, and hips are distinguishable, but the waist tends to be the same width as the rest of the trunk.

Score 2 if the trunk form seems somewhat deteriorated compared with a drawing that would earn a score of 1, and there is increased primitivization.

Score 3 if primitivization is more advanced. For example: round or square trunk resembling a simple circle, rectangle, or square; arms inappropriately placed on the body.

A score of 3 is also earned if the drawing is grotesque or bizarre, or if there is an evasion by an amorphous drawing.

If plus and minus are used instead of the four point scale, score *plus* if the drawing meets the criteria for a score of 2 or 3.

Interrater Reliability

.73 (Handler, 1963); .76 (Handler, 1964); .81 (Jacobson, 1966); .83 (Nordquist, 1966).

XIX. Detail Loss (or Lack of Detail)

Detail Loss should not be confused with Omission. Detail Loss is scored for presence or absence of any item not scored for Omission (e.g., items such as pockets, buttons, fingernails, collar, tie, etc.). Detail Loss is best scored when two drawing productions from the same individual are being compared. However, Detail Loss may be adapted to the scoring of a single drawing by constructing a list of body details, and matching the drawing against this list. If two drawings are being compared, score as follows:

Score 0 if both drawings have about the same amount of detail.

Score 1 if one drawing has an additional detail.

Score 2 if one drawing has two additional details.

Score 3 if one drawing has three (or more) additional details.

If plus and minus are used instead of the four point scale, score *plus* if one drawing has two or more details than the drawing with which it is being compared.

Interrater Reliability

.90 (Handler, 1963); .88 (Jacobson, 1966); .91 (Nordquist, 1966).

XX. Light Line Pressure and Heavy Line Pressure

These indexes refer to the pressure put upon the pencil while drawing. Line pressure may be measured by using a technique suggested by Wirths (1952), where the drawing is done on a pad of paper which has sheets of carbon paper interspersed between its pages. The amount of pressure exerted by the subject is reflected in the number and extent of reproductions made. "The number of the page on which the final impression is visible may be taken as a

measure of . . . the amount of pressure exerted" (Wirths, 1952, p. 209). Note that it is necessary to standardize the weight and grade of drawing paper and carbon paper. Wirths also points out that the hardness of the surface on which the drawing is made should also be standardized. Eight sheets of carbon paper are usually sufficient. The number of the page (held at normal reading distance) on which appears the last impression visible to the unaided eye should be used as the pressure score for that drawing. However, in practice this procedure presents some problems since it is often difficult to determine whether or not enough of an image is present to be scored, and often only a section of a drawing comes through on a carbon. Therefore, it was decided to score "fractions" of a carbon. That is, if approximately a quarter of the image was represented on the *lightest* carbon a score of $\frac{1}{4}$ was earned for that carbon; if half of the drawing was represented on the lightest carbon, it was scored $\frac{1}{2}$, etc.

Either a three point scale or a four point scale may be used. If a three point scale is used, score as follows:

Score 0 if between 3 and $3\frac{1}{2}$ carbons are made.

Score 2 if between $1\frac{1}{2}$ and $2\frac{1}{4}$ carbons are made.

Score 2 if between $3\frac{3}{4}$ and $5\frac{1}{2}$ carbons are made.

Score 3 if between 0 and $1\frac{1}{4}$ carbons are made.

Score 3 if $5\frac{1}{4}$ or more carbons are made.

If a four point scale is used, score as follows:

Score 0 if between 3 and $3\frac{1}{2}$ carbons are made.

Score 1 if between 2 and $2\frac{1}{4}$ carbons are made.

Score 1 if between $3\frac{3}{4}$ and $4\frac{1}{2}$ carbons are made.

Score 2 if between $1\frac{1}{4}$ and $1\frac{3}{4}$ carbons are made.

Score 2 if between $4\frac{3}{4}$ and $5\frac{1}{2}$ carbons are made.

Score 3 if between 0 and 1 carbons are made.

Score 3 if $5\frac{1}{4}$ or more carbons are made.

If plus and minus are used instead of the three or four point scale, score *plus* if $1\frac{1}{4}$ or fewer, or $4\frac{1}{4}$ or more carbons are made.

Interrater Reliability

Jacobson (1966) reports interrater reliabilities of .92 for Light Line Pressure and .85 for Heavy Line Pressure.

Alternative Approaches

An alternative approach in scoring Light and Heavy Pressure was employed by Handler (1963), and described in an article by Handler, Levine, and Potash, (1965). The approach is a rather simple one, and requires no apparatus. The drawing is turned on the back and the fingertips are lightly passed over the surface of the paper. The score is determined according to the extent and distinctness of the raised outline felt on the back of the drawing.

Score 0 if a *moderately* raised outline can be felt on $\frac{1}{2}$ to (but not including) $\frac{3}{4}$ of the drawing.

Score 1 if a *moderately* raised outline can be felt on $\frac{1}{2}$ or less of the drawing, or if a *slightly* raised outline can be felt on $\frac{3}{4}$ or more of the drawing.

Score 1 if a *moderately* raised outline can be felt on $\frac{3}{4}$ or more of the drawing, or if a *markedly* raised outline can be felt on less than $\frac{1}{2}$ of the drawing.

Score 2 if a *slightly* raised outline can be felt on $\frac{1}{2}$ or less of the drawing, or if a raised outline cannot be felt on up to but not including $\frac{1}{2}$ of the drawing.

Score 2 if a *markedly* raised outline can be felt on $\frac{1}{2}$ through (but not including) $\frac{3}{4}$ of the drawing.

Score 3 if a raised outline cannot be felt on $\frac{1}{2}$ or more of the drawing.

Score 3 if a *markedly* raised outline can be felt on $\frac{3}{4}$ or more of the drawing.

Interrater Reliability

.95 (Handler, 1963).

Brengelmann (1961) discusses the use of electronic equipment to measure and

record pressure. He notes that von Bracken, Pungs and Riedel have devised a piece of apparatus which can measure motoric speed and phase changes of pressure as well as providing the usual pressure scores. Luthe (1953) has devised an "electroscripograph" which measures point and grip pressure, as well as the difference between these two measurements. It is possible that these devices can measure pencil pressure with a high degree of accuracy. However, the use of such equipment may possibly pose too much restraint on the freedom of movement required for drawing.

Additional Indexes

Three other indexes, Drawing Area, Head Area, and Ratio of Head Area to Body Area are under consideration as possible worthwhile indexes of anxiety. Their measurement has been facilitated by the use of a Compensating Polar Planimeter, a device which quickly and accurately measures the area of an irregular figure.²

This manual makes no attempt to score each of the indexes separately for each of the body parts. While such a procedure would be quite cumbersome and extremely time consuming, it nevertheless seems necessary in the investigation of figure drawing anxiety or conflict indexes. The present writer is actively engaged in collecting such normative data on adults, and would appreciate hearing from persons interested in cooperating on such a project, and/or persons with available DAP protocols collected in standardized fashion.³

² The instrument used by this writer is the model 6200 Compensating Polar Planimeter, manufactured by Keuffel & Esser Co. It may be obtained from an engineering supply company for about forty dollars.

³ The writer and Dr. Bruce Norton, Chief Psychologist, Salisbury, North Carolina, V. A. Hospital, are planning to collect such data on V. A. employees and patients in the near future.

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1967 Revision of the APA Publications Manual

Beginning with the October 1967 issue (Vol. 31, No. 5) the *Journal* will adopt the stylistic format as outlined in the 1967 revision of the APA Publications Manual now available for \$1.50 from the American Psychological Association, 1200 17th Street N. W., Washington, D.C. 20036. Newly submitted manuscripts should reflect the 1967 revised format.

Revised Criteria for the Group Conformity Rating of the Rosenzweig Picture-Frustration Study, Adult Form

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Summary: Revised criteria for the Group Conformity Rating (GCR) of the Rosenzweig Picture-Frustration Study, Adult Form, are presented on the basis of findings from a population of 460 subjects. These criteria supersede the earlier ones based on a minimal sample of 100 subjects. The method of establishing the GCR criteria is described in detail. A comparison of GCR scores yielded by the original and the revised criteria for two samples of subjects indicates that, though the revised criteria are more complete and more stable and should supersede the earlier ones, results previously obtained with the original criteria are not invalid.

In the Rosenzweig Picture-Frustration Study the degree to which the responses of the subject accord with those usually given by a normative group is expressed as the Group Conformity Rating (GCR). This conformity score is taken as one measure of the individual's adjustment to the group since it may reasonably be assumed that if a subject belongs in a normal population, his apperceptive responses should agree relatively often with those given by such a group. (Popular responses in the Rorschach have a similar basis.) It will be noted that this assumption implies a purely statistical, or social, basis for judging normality; correspondence with group norms is the standard of individual adjustment. Final interpretation of the significance of the GCR in the individual protocol should, however, also take cognizance of the total score pattern since the same GCR may in different total patterns require different constructions.

Criterion scores for the GCR in the Adult Form of the P-F as originally published (Rosenzweig, 1948) were derived from a sample of only 50 males and 50 females. From this population, scores in 12 of the 24 situations of the P-F were selected as occurring with sufficient frequency to be considered typical of adult normals. These scores were incorporated into the P-F scoring system as tentative GCR criteria and much ensuing research has been founded upon their use.

Subsequent analysis of the results of a larger, more representative, population has, however, led to some revision of the criteria for the GCR. This population, described in detail elsewhere (Rosenzweig, 1950), consisted of 236 males and 224 females between the ages of 20 and 29. On the basis of their P-F performance GCR criterion scores, derived by means of a slightly modified method, were found for 16 of the P-F situations. It is the purpose of this paper to report these expanded GCR criteria.

The revised GCR criterion scores were selected according to the following conditions: For each situation the highest frequency for a particular type of scored response, e.g., /E/ or /I/, was required to include at least one-third, or 35 per cent, of the responses for that item, in order for the item to be eligible for inclusion in the GCR. Further, the modal response as just defined had to be separated from the next most frequent type of scored response by a difference with a critical ratio of at least 3.0.¹ If the difference failed to reach this level of statistical significance, the second most frequent scored response was included as a GCR criterion in addition to the first; thus,

¹ The standard error of the difference between percentages was employed in this determination. This statistical procedure was used to test the hypothesis that the same two frequencies could have been obtained in a second, hypothetical, population in which the true difference of the scores was zero.

either the most frequent or the next most frequent kind of response might be acceptable for the GCR. Although it was not required that the second most frequent score, like the first, reach a minimum frequency of 35 per cent, it was necessary that it, in turn, be separated from the third most frequent by a statistically significant difference (C.R. 3.0). Otherwise, a third type of score was included in the criteria, provided that its frequency was again differentiated from the next most frequent mode of response by the same standard of significance. If such differentiation was not forthcoming for the third most frequent type of response, no GCR criterion at all was included for the item.

For example, the distribution of the three most frequent scores for Situation 24 for the female subjects was as follows: /M/, 38 per cent; M' / , 31 per cent; /E/, 15 per cent. Since the modal score, /M/, has a frequency above 35 per cent, this item was qualified for possible inclusion among the GCR criteria. Therefore, the significance of the difference between the frequency of the modal score and that of the next most frequent score, M' / , was tested. Since the critical ratio of this difference proved to be only 1.6, it then became necessary to test the difference between M' / and the next highest score, /E/. The critical ratio of this difference was found to be 4.1; it met the standard of significance set for GCR criteria. Thus, both M' / and /M/ were included as the GCR criteria for this item. Had the second critical ratio failed to exceed 3.0, it would, of course, have been necessary to proceed to a further test of the difference between the incidence of /E/ and the fourth most frequent score. If no significant difference had been found in this third test, no GCR criterion could have been included for Item 24.

The above procedure for the determination of GCR criteria was carried out separately for the male and the female subjects of the normative population.

Final selection of a given score was, however, dependent upon its distribution in both sexes; i.e., a score which fulfilled the requirements for GCR criteria in only one group was not included in the final listing. Since differences between the sexes were very slight, application of this rule resulted in the elimination of only two scores which otherwise were qualified, in one sex, for inclusion. Minor exceptions to the rule occurred in three instances: in Items No. 2, 11, and 12, a second score was included as a GCR criterion despite the fact that in one of the groups the first score had been significantly differentiated from the rest, since inclusion of both scores was judged to provide criteria more representative of the actual distributions of scores in both groups.

Table 1

Revised Criteria for the Group Conformity Rating—Adult Form

Situation	Score
1	M
2	I or i
3	e
4	M or m
5	i
7	E
9	E or e
10	E
11	E or M
12	i or m
16	E
17	I'
19	I'
21	I'
23	E
24	M' or M

Table 1 presents the revised GCR criteria for the Adult Form of the P-F, while Table 2 gives the actual frequencies of the criterion scores in male and female subjects.

When the revised criteria for the GCR are compared with those published previously, it may be seen that criterion scores for ten of the P-F situations (Nos. 1, 2, 5, 7, 9, 10, 19,

21, 23, and 24) are identical in both the old and the revised versions. In an eleventh instance (Sit. No. 11) the revised criterion differs from the old only through the addition of /E/ to

Table 2

Frequencies of GCR Criterion Scores in Adult Male and Female Subjects

Situation	Males (n= 236)	Females (n=224)
1	M (53)	M (56)
2	I (49); i (38)	I (39); i (56)
3	e (42)	e (47)
4	M (42); m (33)	M (33); m (35)
5	i (74)	i (61)
7	E (88)	E (93)
9	E (43); e (43)	E (40); e (43)
10	E (77)	E (83)
11	E (32); M (54)	E (39); M (49)
12	i (33); m (38)	i (40); m (26)
16	E (58)	E (52)
17	I' (38)	I' (39)
19	I (80)	I (78)
21	I' (52)	I' (52)
23	E (59)	E (57)
24	M' (31); M (42)	M' (31); M (38)

Note: Figures in parentheses refer to the percentage occurrence for each score in the population concerned.

the previous criterion score of /M/ alone. One situation (No. 22), formerly included in the GCR, is now omitted, while five new items (Nos. 3, 4, 12, 16, 17) are added.

In order to determine the comparability of ratings based upon the original and the revised criteria, the GCR was

computed according to both standards for a group of 60 male subjects, aged 20 to 22 years, and for a second sample of 38 older women, ranging in age from 30 through 39 years. The results are presented in Table 3. Means and standard deviations of the GCR calculated according to the two methods are almost identical for the female subjects; the means differ by only .2 per cent, while the difference between the standard deviations is .7. For the male subjects, computation of the GCR on the basis of the former and the revised criteria yields only slightly more disparate results; the mean for the original GCR is 64.2, as compared to 67.4 for the revised rating—a difference of 3.2 ($p < .01$). The standard deviations of the two distributions differ, moreover, by only .9. In neither group, therefore, is there serious discrepancy between the distributions of GCR yielded by the earlier and the revised criteria.

Correlations between the original and the revised ratings in each group of subjects provide further evidence as to the comparability of the two measures. The product-moment coefficient for the male subjects was found to be .81, while that for the females was .77. A high degree of correspondence is thus apparent in both groups.

Since the relationship between the original and the revised GCR is thus shown to be very close, with respect both to overall distribution and to individual position within the group, it is clear that the present revision of the criteria for the GCR need not invalidate the conclusions of previous investiga-

Table 3

Sample Comparison of GCR Computed according to Original and Revised Criteria in Adult Male and Female Subjects

	Males (n= 60)		Females (n=38)	
	Original GCR	Revised GCR	Original GCR	Revised GCR
M	64.2	67.4	68.3	68.5
SD	12.3	11.4	11.8	11.1
r	.81		.77	

tions employing the former standards. However, because of the more stable foundation upon which the new criteria rest, they should, of course, replace the previous criteria.

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Reporting Diagnostic Test Results to Patients and Their Families

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Summary: Clinical psychologists have been concerned about the proper presentation of their test results to everyone but the patient. Nevertheless, they bear an obligation to inform the patient of the findings, which, after all, were contingent upon his cooperation and effort. A method of presenting such data is described, which can be applied to school, vocational, and psychiatric disturbances, and one case is presented in detail. The method's efficacy is largely a function of the skill and experience of the counselor, the motivation of the client, the presence of a positive working relationship, and a respect for the person being tested.

This paper will describe a method of reporting deep and intimate personality test findings to clients in general and severely disturbed patients in particular, and illustrate the procedure with a case study.

The rather meagre literature on the subject has been devoted to methods of reporting test results to different professionals and disciplines about the patient, but not to communications between the psychologist and his patient directly (e.g., Klopfer, 1960; Huber, 1961). Actually, however, clinical psychologists often do present test results to their clients. They utilize test scores and responses for psychotherapeutic purposes and for guidance, as has been reported in some detail by Harrower (1956, 1960).

It is also true that psychologists are generally reluctant to share their information with the client, as Gross pointed out in his criticism of the uses of tests in school and industry (1962). W. Clapton, who is not a psychologist but was invited to submit his comments to the *American Psychologist* suggested that psychologists "might consider giving the individual test subject as full an explanation as they can of what is being done with him, and why, along with some assurance that his most private attitudes about sex or religion will be protected" (1965, p. 876).

On the other hand, psychologists are wary of the powerful and possibly baneful effect of the information packed in

their testing instruments. They want to be certain the client is strong and free of fragile areas in his defensive armor before he is informed. For example, despite her success in the use of projective counseling, Molly Harrower cautions that "the individual must show sufficient ego-strength and adequate controls so as to handle anxieties which may be mobilized" (1960, p. 34). Cronbach, too, reports, "The counselor hesitates to tell a student his attitude and personality test scores unless there is ample evidence that he can accept and comprehend the findings" (1960, p. 432). The client emerges as a rather weak being, while the psychologist accepts the magical image of himself as someone in charge of great and dangerous secrets.

There is one incident reported in the literature where the test results of an adolescent boy were discussed with his mother by a psychological trainee, with unfortunate results (MacGregor, Ritchie, Serrano, and Schuster, 1964, p. 204). They report that "This trainee's fascination with the fanciful and sometimes bizarre responses to the Rorschach cards led him to report almost literally on the tests to the mother. She was not only shocked at the content of her child's fantasy life, but concluded that the lad was very sick indeed. The unnecessarily severe anxiety engendered in the parents was alleviated by painstaking interpretations and reassurance by other team members later in the day."

Such experiences may confirm the danger of reporting test results, but the authors were aware of one very crucial variable, the limited experience of the trainee. "He was well trained and had some experience in administering various psychological tests and in preparing quite adequate reports on the tests for the referring persons, usually psychiatrists and occasionally school personnel . . . However, prior to his experience in MIT (Multiple Impact Therapy) he had had little or no training or experience in interviewing or therapy."

There are empirical and clinical reasons, however, for questioning any sweeping generalizations against the reporting of test results, *when performed by experienced professionals*. For the past four years the writer has been accumulating clinical evidence that the skillful sharing of test results with the patient is often beneficial, *especially* for the very disturbed, when conducted by a psychologist trained in both testing and psychotherapy.

The procedure to be described was initiated fortuitously when the mother of a subject on a research project refused to allow her son to be tested unless she were shown the results. After a consultation with the referring doctor, I showed her the test scores and responses, which essentially depicted a gifted boy whose resources were being strangled by his mother's domination. Her reaction was a flood of tears and self recriminations, combined with what sounded like genuine insights about her son, and concluding with requests for advice and possible psychotherapy.

Emboldened by this experience I began to present these very intimate test results to psychiatric patients and their families. The results continued to be encouraging. The nature of the population may have contributed to the success of the venture. The bulk of the subjects, about 50 in all, were outpatients obtained from my private practice, with a few from a private agency and a city hospital mental hygiene clinic. The patients ranged in diagnosis from mild neurotics to severe schizophrenics, and

in age from 6 to 48. Although all were outpatients I see no counter-indication to applying the technique to inpatients. The more deviant patients appeared to feel understood and therefore relieved, following the counseling session.

PROCEDURE

Telling a patient his test results in the right context and with good timing may be sufficiently effective during an ongoing therapeutic relationship. In just one counseling session, however, the procedure has less effect when the client is *told* the results than when he is *shown* them. The mere sharing is therapeutic.

The following procedures are those which have proven most effective for the writer. The WAIS or WISC scores and the Rorschach psychogram are the basic data used in the counseling. After the test blanks have been placed on the desk or table where both the patient and psychologist can examine them together, a typical introduction would go as follows:

"I gave you many different tests, both of intelligence and personality, so there is a lot of material. Of course, these are only tests which are scored, and the interpretations are made from the scores. The interpretations could or could not be accurate. You are the best judge of that. I will show you your test scores and discuss the meanings. The chances are that they will speak for themselves.

The intelligence test is called the Wechsler Adult Intelligence Scale; it's really eleven different tests. Each test gets at some other aspect of your functioning, so the test as a whole is very helpful in seeing where you function well and in what areas you are weak. In other words, you get a kind of cognitive map of your mind."

The initial phase consists largely of educating the client quickly in a way of looking at himself and his cognitive and personality abilities and disabilities. I spend much time explaining how the in-

telligence test scores are derived and the function which each Wechsler subtest and Rorschach score presumably gets at.

After this didactic introduction I write out the actual test scores on a fresh scoring sheet, subtest by subtest, explaining the significance of the pattern that is gradually emerging, emphasizing the positive but by no means ignoring or minimizing the problematical. I avoid psychiatric or technical jargon. I do not report the total I.Q. score, and usually comment that with all the wealth of material in the pattern analysis the I.Q. score is unnecessary and even misleading. Typically, if the Wechsler shows uneven or inefficient functioning, attention difficulties, etc., I make the interpretation that something is interfering with the client's functioning, and maybe the personality tests can help find out what this is.

With the Rorschach, I show the patient the psychogram, and explain that scores on the left reflect one's inner world, those on the right reactions to outer stimuli and emotions, and those in the center represent reality. I point out indications of mature and immature strivings, the presence of original features, the presence and extent of anxiety, depression, impulsivity, etc. When there is ego pathology in the form of paralogical thinking and impaired reality testing, I deal with this through an "ego-strain" score, which is simply the number of responses containing severely disturbed thinking and/or perception. I explain this score as indicating that when pressures and strains are great enough the patient cannot think straight or tell the difference between what is real and not real. (Patients for whom this interpretation is accurate react with relief and very often with a description of some of these experiences.)

After the account of the formal scores the patients are told that what they see is also important, although less so than the psychogram, and can be interpreted as an analyst would a dream. Looking at it this way, I continue, the following themes were the ones which stood out

most in their record. I then summarize the major conflict areas, and their feelings about themselves and others.

There are wide individual variations, indeed, in my approach to the patients, which scores I emphasize, and which interpretations I stress. Each session is tailor-made to the particular patient or his family, and each one contains much academic information about testing and the nature of personality and intelligence. The method will be illustrated by a report on one case in some detail.

CASE ILLUSTRATION (Therapist Dr. Ida Davidoff)

Mrs. B. A., a 39 year old mother of four, was referred early in 1965 by her psychotherapist for vocational counseling, a recommendation which clearly caused her considerable ambivalence and fear. She made very tentative steps towards contacting me for an appointment, but postponed the meeting and did not call again until a year later, in 1966. After many minor obstacles she finally appeared for two testing sessions. She remained very anxious during the examination, and the experience was clearly a most trying one for her, but she did cooperate to the best of her ability.

She was administered a test battery consisting of the WAIS, Rorschach, Bender-Gestalt, and Figure Drawings. The WAIS and Rorschach scores are summarized in tables 1 and 2. A report was written for her therapist. The patient was then contacted and an appointment arranged to discuss the test findings with her.

For the purpose of illustrating the counseling process, parts of the report will be presented, followed by the transcript of the same material as discussed with the patient.

Excerpt from test report:

"On the WAIS, Mrs. B. obtained an I.Q. of 108, derived from a Verbal I.Q. of 110 and a Performance I.Q. of 105. Aside from one very lowered score (Object Assembly), 6 of the 11 subtests were in the Average range and 4 were Superior. She did best on tests dealing

TABLE 1
Summary of WAIS scores

Test	Weighted Score	Test	Weighted Score
Information	13	Picture Completion	9
Comprehension	13	Picture Arrangement	14
Arithmetic	10	Block Design	9
Similarities	10	Object Assembly	7
Vocabulary	13	Digit Symbol	11
Digit Span	11		

Verbal I.Q. 110

Performance I.Q. 106

Full Scale I.Q. 108

TABLE 2
Summary of Rorschach Scores

Determinant	N		
R	41	P = 9	
M	10	O = 9	
FM	8	"Ego-Strain" = 12:	
m	6	F-	4
F	10	Fabulized	
Fc	9	Combinations	6
FC	2	Confabulatory	
		Tendencies	2
CF	2	Total	12

Note: The Klopfer scoring system was used, except that all shading responses were scored Fc and some percepts were scored for two main determinants when both appeared important.

with social comprehension and awareness, a result consistent with the Rorschach, which contained an emphasis upon social concerns. Her approach, qualitatively, might best be described as a decompensating obsessiveness."

Excerpt from counseling transcript:

(The tests were introduced, as described in the section on Procedures, and the meaning of raw and weighted scores was explained, using the Information test as a concrete example. The patient's Verbal WAIS scores were noted down, subtest by subtest, with a concomitant discussion of the meaning of each one and its relationship to other subtest scores. I summed up the pattern with): "So the picture is of somebody who shows superior learning ability and good reasoning ability, but falls down on

things like number tests which have more to do with attention and concentration."

(The Performance test scores were then noted, saving her Superior Picture Arrangement score for last, with the comment:) "That's a very big difference. When you get big differences, with some scores very much higher than others, you start thinking that you're not using your abilities for some reason; there's some interference with them."

Pt: "In the discrepancy between them?"

E: "When there's that much discrepancy."

Pt: "And your analysis is that I -?"

E: "That there's something blocking and inhibiting you intellectually. You did seem very anxious about the tests. When

it comes to being smart, apparently there's a great deal of anxiety."

Pt: "Well, that goes back a long time. You see, I never studied too hard in school. When I did I could do well, you see, and all these years I've kind of wondered if I really had the ability to do this."

E: "So you were very anxious and there was this unevenness in the test scores. Putting two and two together, maybe they're related. The tests also show an ability to get through college. The problem is not that of basic ability but the interference with attention and concentration, probably on the basis of anxiety..."

Pt: "Well, that's possible. I read a great deal, but I don't remember as much as, say, my husband does. I don't know why. I take generalities out of things rather than remembering certain things. Maybe this is just me, or maybe I'm just -" (Laugh).

(The patient is now questioning the reason for her difficulties, which created a good opportunity to go naturally into the Rorschach findings; and so we did.)

E: "Fortunately, you took other tests also, and maybe they can help you understand the basis of these difficulties."

Pt: "Good!"

E: "It's never just one test but the whole pattern of different tests that helps us. Let's look at the Rorschach."

(With the scoring sheet before us, Mrs. B. was given an explanation of the test determinants.)

E: "Would you like to see how you did?"

Pt: (Laugh) "That would be interesting."

(I began with R (41), which, I commented)

E: "Shows a good amount of productivity. Even though you impressed me as a very blocked person there's something there once the block is eased up."

Pt: (Clearly relieved) "Well, I must admit I was apprehensive about these things. Is it not so that when you decide in your life that you, you know, what kind of person you are, what abili-

ties you have, it takes - I think one is apprehensive? It's good to face things, but . . . I'd like to feel the assurance that I'm capable. I sort of feel that I am, but I'm not sure."

Excerpt from test report:

The Rorschach was highly ideational, even overrideational, and revealed a struggle with the data which bespoke a harsh and dominant conscience. There was relatively little reaction to external emotional stimuli, and the pattern was dominantly withdrawn and introverted. As on the WAIS, the Rorschach also revealed decompensating defenses. The basic character structure was that of an obsessive with borderline features. Although the pattern suggested a chronic borderline adjustment, the level of anxiety, tension, and depression, and some indication of periods of sexual agitation, revealed some acute disruption at this time.

Excerpt from counseling transcript:

Her 9M responses were interpreted as "Brooding, thinking where you just can't stop; it's too much . . . (But it also) suggests a capacity for mature thought, and it goes along with an interest in people." (As for the FM also being high): "We're getting a picture, so far, of maturity and of immaturity, which suggests an inner conflict between the child in you and the adult in you, with a lot of both being there."

E: "There's a picture here of emotional unpleasantness: a lot of anxiety, a lot of tension, and a lot of depression. Just what these stem from doesn't come through in the scores, but they're probably based upon long-standing frustrated needs from childhood that have not been resolved or worked out. As for the outer side . . . you can express your feelings in a controlled way and also do so impulsively, and that's a nice balance. If you're always controlled you're cold, and if you're always impulsive you're in hot water, but having both is fine. Except that the total amount is low compared to everything else. It is still an inner, introverted picture. That's

what you predicted, didn't you?"

Pt: "Mm-hmm."

E: "So you had some insight." . . .

(I pointed out the high number of populars and repeat the interpretation of an interest in working with people. The patient disagrees).

Pt: "The one thing I hadn't done is, uh, I'm so wrapped up with many things at home and many problems and so forth, that I really have not had much contact with, say, friends and people all my life, which I would like to have done, you see. I'm just starting now, but it has not been that way, and so it's difficult for me to know."

Excerpt from test report:

Her ego seems under more of a strain than she can deal with, and as a result there are eruptions of primitive defenses such as denial and projection, and more archaic modes of thought and perception. Parts of the blot are combined in an incongruous, illogical way, with little attempt to apply a more reality-oriented judgment. Thus, one card is seen as a candle which has two pairs of human feet attached, dancing. Another card is seen as angry fish with legs and with flowers growing out of their heads . . . In all, 30 percent of her responses contained some indications of ego pathology in the form of archaic thinking, defenses, or reality perceptions.

Excerpt from counseling transcript:

E: "The one other item showing a problem is something called an "ego strain" score, which means that under severe stress you can't think straight; you get disorganized. You can't interpret properly and tell what's real or not. That score was 12, which is also very high. So the test picture is of somebody who is under very great pressure, so much so that if you went to school right now you'd find it very hard to have your attention on objective demands. There are too many unresolved problems."

(I do not present the most serious pathology before placing it in the context of the total personality pattern.

Similarly, with the dynamic content themes, I present the deepest layer of problems last.)

Excerpt from test report:

The projective tests reveal a strong feeling of being different from others, unformed and/or malformed, and of not belonging . . . Many of her percepts express a feeling of being wrong, or not quite human. Her feelings of belonging to the human race also appears uncertain. Her self image has an elfin but not quite human quality. Card I is Little Red Riding Hood. Card II is little elves. Card III is a half human, half animal creature. Card IV has the dancing candle. Card V Satan. Card VII is an ugly god out of ancient history; and so forth. Such quasi-human percepts indicate a severe disturbance in her own sense of self . . . A prominent theme in her percepts is that of a large figure with several small figures attached. The last blot, for example, is seen as "seaweed . . . one glob with sort of pieces hanging off from it, floating around." . . . Much guilt, depression, and feelings of evil are associated with her resentment, her covert rejection of the maternal and wifely role, and her associated feelings of not being a fit woman. On Card V she saw, first, a dead butterfly with shrunken and crumpled wings, and then Satan with two birds perched on his shoulders.

Excerpts from counseling transcript:

E: (I repeated the analogy between dreams and Rorschach imagery, as described in the procedures section.) "Because these are just ink blots, you have to organize them in accordance with something that has meaning for you, some symbolic meaning. One of the themes that stands out is very interesting because it is just the opposite of what I said about your social interests. You express the feeling of not belonging, of not being accepted."

Pt: "Can that be, the two extremes? Aren't they sort of contradictory?"

E: "Possibly. They are at least conflicting and distressing. The same con-

tradition shows up in the way you think about yourself, as somebody who feels distorted or damaged or not made right in some way. Yet on the other hand you also show a much more accepting self picture, where you see yourself as pixyish. I would say the contradiction stems from ambivalence about yourself, but it must show up in everything and everybody."

Excerpt from test report:

(This section contained what I considered the patient's central problem, the symbiotic tie to her mother.) She expressed a severely disturbed relationship to the mother figure, who is loved and hated, degraded and looked up to, but from whom she is never separated . . . It would appear that the primary goal of therapy would be an alteration in her own mother-child relationship.

Excerpt from counseling transcript:

E: "The feeling of not belonging and of not feeling adequate shows up as an identity problem. In terms of being a woman, a wife, and a mother you feel that you're not up to it. In your symbolisms one of the themes is that of not being an adequate mother. Another similar theme is the feeling of needing a mother yourself, and of a very close attachment to her. The suggestion is that you have not made the separation yourself into an autonomous individual."

Pt: (Stutters and stumbles around for words). "This means I would need a mother figure myself . . . And then you said about the separation, that there's no separation between the mother figure and myself?"

E: "You don't feel like an independent entity."

Pt: "Well, you hit it on the head. All these things, they all add up. That's one of the reasons I've been seeing the doctor. And as you mentioned, I've never really grown out of adolescence, but it's because I never had the chance to really grow as a person. That's why she felt these (tests) would be very good. When I suggested them, my doctor thought they would be very good for

me, to give me a little stimulus and interest and to know a little about myself. I mean they go along pretty much in many respects with what I'm understanding. I still have a long ways to go . . . and even though these things have been, because I'm going to her they have been a lot better. I can imagine what may have been if I had taken this test a year ago. I imagine these things can change to a degree for the person's personality. It would be interesting to know in a year or two how things could be."

Follow up:

The patient did have an argument with her mother the week-end succeeding the counseling session, but there were no other negative consequences of the presentation of the test results, if the argument were a negative consequence. In her therapy sessions she spoke positively of the test counseling, mainly about the reassurance it lent her that she was intellectually capable. The patient has since moved to another state, where she is enrolled for a B.A. degree in anthropology, and at last report is doing very well.

DISCUSSION

It has been my consistent observation that in the hands of a properly trained person, the most delicate, basic, "deep," and "unconscious" material can be presented to an emotionally disturbed patient, and the results are salutary. However, I have only attempted this procedure with subjects who are relatively intact even when schizophrenic, who do not display the bizarre delusions and other florid symptoms which are sometimes encountered, and who are not a danger to themselves and others.

By and large, success with the procedure was related to the degree that the patient and his family were ego involved, wanted to know the results, were dissatisfied with something about their lives or their children's, and who had voluntarily sought help and advice. There seemed to be differences between clients at different educational and so-

cio-economic levels; and also by sources of referral. These are undoubtedly the same variables which are related to success in psychotherapy. The least success was experienced with some parents of schizophrenic children and of children who were sent under coercion by outside agencies because of school difficulties.

On several occasions I have been asked to interpret the test results for patients whom I had not personally tested. I was particularly struck by the differences in reaction between those who had been personally tested and those for whom I had been called in as an outside consultant. The first group related in a manner analogous to that of a patient with his therapist. The second group was often guarded and unresponsive. One inference is that the testing procedure establishes a bond which makes the client particularly ready to benefit from the test counseling. It would appear, therefore, that diagnostic psychological testing by itself has therapeutic effects, the potentials of which have yet to be effectively explored or utilized.

Experience also indicates that when the tests are discussed with the family it is important that both parents be present. I have become very wary when only one parent attends, especially when it is the mother who is absent. In such cases she may be the most important person involved, and her absence is an indication that the meeting will not be fruitful. The situation is similar to that described by Sonne, Speck, and Jungreis (1962) in family therapy, where a key member may be absent, as a maneuver to maintain the status quo of the family.

Such experiences have led to a search for more effective methods. For example, I now believe it desirable to have the patient himself at the family conference. Another possibly fruitful procedure is to test the parents and discuss their own personality and intellectual patterns with them. Bowen (1965) has reported the use of this method by Mendell and Fisher (1958), albeit for a dif-

ferent purpose.

Recently, I have been recording the counseling session, then permitting the patient to listen to the tape at his leisure, and to share it, if he wished, with his family. There is such an immense amount of highly charged material presented, so much more than can be absorbed in one sitting, especially by someone who has a strong emotional involvement in the data, that I now think it essential that the material be presented again.

All these aids are important and should be worked with. For the effective presentation of test material, however, the most important ingredient is much experience with and an interest in sharing the great insights derived from these tests with the one who is most centrally concerned, the patient. The final conclusions are that diagnostic psychological testing contains an as yet unrealized therapeutic potential which merits further exploration; and that patients and their families can tolerate a great deal more information and hard facts than is generally recognized.

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1967 Revision of the APA Publications Manual

Beginning with the October 1967 issue (Vol. 31, No. 5) the *Journal* will adopt the stylistic format as outlined in the 1967 revision of the APA Publications Manual now available for \$1.50 from the American Psychological Association, 1200 17th Street N. W., Washington, D.C. 20036. Newly submitted manuscripts should reflect the 1967 revised format.

Comment on Wagner's Conception of Capgras' Syndrome

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Summary: A conceptual framework was presented in which cases of Capgras' syndrome may be conceived of as manifesting concrete thinking in the formation of an identity concept, while the patient presented by Wagner manifested something that is more akin to over-inclusive thinking.

In a recent article in this Journal, Wagner (1966) presented a diagnostic case study of a young girl with a delusional system that he suggested was probably a variation of Capgras' syndrome.

Originally reported by Capgras and Reboul-Lachaux (1923) as "L'illusion des sosies" - the illusion of doubles - the essential feature of Capgras' syndrome is a failure on the part of the patient to acknowledge a familiar person, claiming, instead, that a double has replaced the original (Todd, 1957; Enoch, 1963; Bankier, 1966). In nearly all cases that have been reported, the person is seen, but not accepted.

In the case presented by Wagner, the patient, a young unmarried woman who had recently been jilted by a medical student, found herself being annoyed by acquaintances who would relate that they had met a married couple whose description matched that of the estranged couple in all essential details. Wagner acknowledged that this case differed from Capgras' syndrome in that the experience was indirect; that one of the doubles was of the patient herself; and that there were two doubles instead of one. [This last point, is not, in fact, a point of difference. More than one double was present in the delusional system of the patient originally reported by Capgras & Reboul-Lachaux, as well as in those reported by Davidson (1941), Todd (1957), and Enoch (1963), among others.] But, on the grounds that his patient believed that an impostor had as-

sumed the identity of some familiar person, had been diagnosed as a paranoid schizophrenic, and provided a Rorschach record similar to the ones provided by the patients studied by Stern & MacNaughton (1945), the delusion was tentatively classified as a variation of Capgras' syndrome.

However, Vié (1930) made a distinction between illusions of positive, and illusions of negative doubles, which was subsequently described by Coleman (1933) as a distinction between syndromes of non-recognition and false-recognition, respectively. Capgras' syndrome was regarded as a prime example of the former, and in the latter group they included Courbon's (1923) "illusion de Frégoli". From his description, Wagner's patient would appear to be a further example of the syndrome of false recognition.

Another way of conceptualizing this distinction is in terms of the thought processes that may be presumed to underlie the symptomatology. In their book, "A Study of Thinking", Bruner, Goodnow & Austin (1960) draw attention to two broad types of categorization which give rise to two fundamentally different types of concept: the concept of identity, and the concept of equivalence. Identity categorization they define as classing a variety of stimuli as being the same thing; while equivalence categorization is classing a set of discriminably different things as alike by virtue of some common property. The majority of work on thinking and thought disorders has

been devoted to the study of equivalence categorization. But in Capgras' syndrome, the essential feature is a disturbance in the patient's apparent ability to form or preserve an identity concept. This could be due to an inability to accept the change in a familiar person over time, not only physical change or change in appearance, but also change in emotional response. It is by no means inconceivable, for example, that a patient's close friends and relatives will change in the way they feel towards him as his illness progresses and he becomes more estranged. This would be a reversal of the processes involved in the attempts to interpret or explain Capgras' syndrome in terms of its psychodynamics. Enoch, for example, followed Blondel (quoted by Devine, 1929) in suggesting a change in the patient's feelings towards the familiar person as a determinant of the syndrome: insofar as the patient can only accept this change in his feelings if he believes that the familiar person has also changed, he "imagines" the existence of a double. If this is so, then the patient would be manifesting an apparent "concreteness" of thinking that is analogous to the concreteness manifested by brain damaged patients who have difficulty in forming equivalence concepts. The patient described by Wagner, however, insofar as she regarded two different people as one, may be regarded as manifesting a form of over-inclusive thinking in her formation of an identity concept that is analogous to the over-inclusive thinking usually attributed to schizo-

phrenics when forming equivalence concepts. For Wagner to regard his case as a variation of Capgras' syndrome, therefore, is to detract from its potential significance.

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Double Trouble: A Reply to Coles' Comments on the Imaginary Lovers Delusion

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Summary: Coles' case for viewing the Imaginary Lovers Delusion as "false recognition" is based on Coleman's dichotomous reclassification of the various delusions of doubles reported in the literature. It is suggested that Coleman's position is logical but not compelling.

Coles presents an interesting and convincing argument for classifying the "Imaginary Lovers Delusion" as a symptom of "false-recognition" as distinguished from Capgras' syndrome of "non-recognition". Coles may well be correct; but I have some lingering doubts based on the empirical finding that the cases reported by Stern and MacNaughton (1945) and my own subject (Wagner, 1966) displayed common features on projective tests. Assuming these resemblances are intrinsic rather than fortuitous we are faced with at least two possibilities: (1) the delusion of a double will manifest itself in a characteristic fashion on projective data regardless of whether the pathological process is brought about by concrete or over-inclusive thinking; (2) Coleman's (1933) categorizations, which Coles champions, while logical and appealing, may be etiologically unsound.

The question reduces to whether or not one is prepared to accept Coleman's dichotomy at face value because it seems plausible. What is needed, of

course, is sufficient test data on both types of cases to allow a determination of whether the hypothesized divergencies in thinking actually exist. The problem is how much confidence should be placed in Coleman's astute but speculative reclassification. I hesitate to endorse further proliferation of psychological nosologies without substantive clinical evidence. In short, I would rather not double our double trouble.

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BOOK REVIEWS

Saarinen, Pirkko, *Developmental Results in a Block Sorting Test*, Psychological Institute, University of Helsinki, Helsinki, Finland: 1964, 30 pp.

Fosberg's version of the Vigotsky Block Test was adapted. The study explores the nature and extent of changes in conceptual thinking at different developmental levels, in terms of age and intelligence. Both "active" and "passive" concept formation is evaluated qualitatively: the subject sorts the blocks and defines sortings arranged by the experimenter. A smooth progression from concrete to abstract, generalized solutions with increasing development was found. Five graphs and twenty-three references round out the presentation.

This study represents a novel variation on an old theme: The twenty-four blocks in the test differ in four attributes, color, shape, altitude, and surface roughness. The analysis of results is painstaking and considers the following aspects: A) Flexibility in shifting from one principle of sorting to another. B) Preference among sorting criteria. C) Adequacy of sortings and definitions. D) Inadequate responses. The main contribution of this research, which confirms the general results of many similar studies, is that it strongly points to a smooth, regular progression from concrete to a more abstract level of concept formation with increasing mental development. Also, the task is relatively "culture-free," and scoring is objective. The discussion of findings and implications is thoughtful and stimulating. The one drawback is the exclusive use of female subjects.

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Naumburg, Margaret, *Dynamically Oriented Art Therapy: Its Principles and Practice*. New York: Grune & Stratton, 1966. 168 pp. \$17.50.

Art therapy, as Naumburg uses the term, does not involve the same thing as occupational therapy, nor does Naumburg's art therapy include teaching the patient how to paint. Both the teacher and the occupational therapist are attempting to provide the patient with certain skills, whereas dynamically oriented art therapy draws upon

the patient's own spontaneously created art products. These artistic productions should reflect unconscious defenses, thereby enabling the dynamically oriented art therapist to explore relevant wishes, dreams, free associations, and defenses of the patient. Thus, the author's approach is psychoanalytic, with spontaneous drawings used as the basis for a kind of psychotherapy which is similar, in many ways, to the traditional Freudian approach. Perhaps the greatest differences between Freud's style of therapy and Naumburg's is that (a) Naumburg uses artistic productions as the starting point, seeing the art of the patient as a means of getting at unconscious defenses; (b) Naumburg is more active with the patient, seeing her role as similar to that of Sullivan, Horney, or Fromm, all of whom are concerned with the interpersonal exchange between patient and therapist.

At first the patient may be unable to open up and express his feelings in his drawings. There are several techniques which can be employed to overcome this initial constriction. For example, the art therapist may encourage the patient to scribble, in the hopes that such uninhibited scribbling will provide greater opportunities for the unconscious to express itself. As can be appreciated from the descriptions of Naumburg's technique, her orientation is psychoanalytic. To evaluate her approach two different kinds of questions can be considered. First, how well does she do what she claims to do? That is, given the psychoanalytic framework, do the art productions of her patients seem to reveal any defenses which might otherwise not be expressed? Fortunately, the book contains 81 illustrations, 21 of which are also shown in color. While this probably contributes greatly to the high price of the book, these drawings, in conjunction with the three case histories, provide us with a means of seeing just what it is that Naumburg is theorizing about. To answer the first question, the drawings and the case histories seem to indicate that personal conflicts are revealed in the drawings, and that the drawings do seem to stimulate the patients to explore further the psychodynamics implied in such drawings as that of a mother whose face resembles a penis (fig. 4), or the drawing of a father as a bull (figs. 9a & b) which was interpreted as representing sexual aggression from the father. Perhaps many of these conflicts would have been expressed without the aid of art therapy, but it seems equally likely that some would not have come out as readily, or the intensity of the conflicts would not

have been appreciated by the patients without the assistance of the spontaneously created drawings.

The second question we may ask of the book is: How well does Naumburg's position accord with other, nonpsychoanalytic, findings? Here, too, the book fares well. Consider two studies by the reviewer (Eisenman, 1965, 1966) which suggested that schizophrenics tend to prefer relatively simple shapes. There are many possible reasons why schizophrenia and preference for simplicity might go hand in hand. Naumburg provides some possible answers when she discusses how schizophrenic thinking is often expressed in their designs, in which a single image will express an elaborate sequence of ideas. If schizophrenics freely form many associations to very simple figures, they may prefer such simple figures to more complex shapes which would tend to elicit too many associations, and thus "overload" the patient with conflicting or uninterpretable information. Naumburg also considers the fact that paranoid images often show rigid, geometric patterns. If paranoid schizophrenics are attempting to deal with their world in a rigid, overly-simple fashion, it might not come as a surprise to find that paranoids prefer simple rather than complex shapes. Although Naumburg was not at all concerned with the reviewer's data on complexity-simplicity preferences of schizophrenics, her discussion of the diagnostic value of her brand of art therapy fits in well with the reviewer's findings. Thus, there is a kind of "external validity" to what she says, since it can be extended beyond the three case histories presented.

There is one negative feature to this otherwise excellent book. This negative aspect is the uneven nature of her introduction. At times Naumburg is concerned with very interesting information, such as the above-mentioned diagnostic usefulness of art productions, or her discussion of the history of symbols in art. These discussions have a wealth of information which the informed reader can relate to other knowledge he may possess. Less valuable are the discussions on when and where the author presented various papers, which is a rather superficial view of how her style of art therapy developed. Since the introduction covers so much varied material it is perhaps inevitable that some impression of "unevenness" would be presented, but the reviewer found the brief history of papers presented especially out of harmony with the rest of the introduction.

The book consists of the introduction, with six subsections, and the three case histories. These histories, involving a professional artist who was also an ulcer patient, an alcoholic woman who experienced hallucinations, and a depressed female patient, help the reader appreciate how the techniques discussed in the introduction are applied to real life. The reader will find himself

with a much greater appreciation of how art therapy can work within the context of a psychoanalytic framework, but only if the reader is willing to accept some of the psychoanalytic principles relating to defense mechanisms. It is unfortunate that the book is so highly priced, as this will surely insure its avoidance by many. It would be still more unfortunate if, as will surely occur, some fail to read it at all because of the book's reliance upon the psychoanalytic framework. Naumburg has done a good job in showing how patients' drawings can be used in psychotherapy, and in relating her principles to previous work on the use of the symbol in society. Evaluation of the effectiveness of her dynamically oriented art therapy will have to be undertaken by those who understand her principles and are willing to test their usefulness via psychological research.

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Holland, John L., *The Psychology of Vocational Choice*, Waltham, Mass.; Blaisdell Publishing Company, 1966, 132 pp.

Although vocational psychology is one of the oldest segments of the psychological spectrum, clinicians have generally looked down upon this sister branch, seeing it as a rather prosaic, superficial, symptomatic application of certain empirical test findings and statistics, mixed with half-baked counseling techniques. The more searching clinician has looked in vain for findings based on basic theory or on application of personality structure to vocational choices.

For a brief period, research by Ann Roe, Stein, Fine and some isolated others, as well as some Rorschach studies of vocations and doctoral dissertations along similar lines gave hope that sound progress towards linking vocational choice with basic personality variables was finally under way. This hope, however, was short lived, and, with the exception of various sociological and self-concept carrier theories, the field fell back again on the rather sterile and well worn aptitude, attitude, intelligence patterning basis for vocational guidance.

It was therefore refreshing to read Holland's promise in his sub-title, "A Theory of Personality Types and Model Environments." However, while his approach is somewhat more than merely empirical and descriptive, it is hard to see what the concept of "theory" means to him, other than that he finds stability in six vocational types across not only his own test, but in many other measures, social histories, self-concepts, preferred occupational roles and other background material.

Having recovered from our disappointment at lack of real theory, Holland's contribution, nevertheless, has to be seen as a considerable one. He offers us a relatively simple typology which allows efficient classification of students, job applicants and patients, if indicated, as well as a classification in similar terms for the settings in which they may be placed.

The summary of Holland's theory runs like this:

1. "In our culture most persons can be categorized as one of six types - Realistic, Intellectual, Social, Conventional, Enterprising and Artistic."
2. There are six environments corresponding to the same types.
3. "People search for environments and vocations that will permit them to exercise their skills and abilities, to express their attitudes and values, to take on agreeable problems and roles and to avoid disagreeable ones."
4. A person's behavior can be explained by the interaction of his personality pattern and his environment.

While we would all agree with the general concept of the last statement, the reviewer feels that the word "personality pattern," is used too loosely, and that no effort was made to study the processes or variables of the "interaction."

The contribution therefore rests on the classification into the six types which corroborates empirically earlier findings by Strong, Kuder, Allport-Vernon, Gough and others but had not been previously as clearly separated.

The detailed descriptions of the six types delineate their differences from each other, as well as some correlates in other measures and findings of related studies. For some types, patterns of parental and home background seem to have meaning, but not consistently for others. For some types, Holland attempts some sublimatory rationale. For example, in the "intellectual type," "he reduces stresses by avoiding others (insularity), projecting (defensive hostility), rationalizing (intellectualization) and obtaining safety through knowledge (perfectionistic unassailability)."

This same attempt is not made for all types since material for it seems to be scarce. But even with the shortage of available knowledge as to what produces the stability in these six clusters, their stability in itself is a very important basis

for classification and further research.

Holland is aware that he is using the same measures for women and that the meaningfulness of his findings for women leaves a lot to be desired. This is to be expected in a vocational world which has primarily masculine orientation. It is the reviewer's feeling however that with the same investment given to the male six types, a more fitting female typology might be established. There are obviously many issues related to success in such an attempt.

Holland emphasizes the simplicity and efficacy of his classification system, which must be admired and certainly should be recommended for use to create a basis for wide comparisons and to add an important variable, similar to the IQ variable, to the variable cluster of ego psychology.

Holland shows us some interesting and useful applications of his classification in terms of fits with corresponding environments. His concepts of "congruent-incongruent" as well as "consistent-inconsistent" interactions are helpful concepts for placement predictions.

Holland ends by suggesting possible research applications of his "theory." For the clinician, an intensive study of individuals exclusively high on any one of the types or combination of types would be most interesting. Such a study might advance our understanding of the relationship of vocational choices to more basic personality structure, or possibly throw light on the variables involved in particular sublimatory approaches.

Holland considers this theory an "heuristic" one. In other words, while his typology looks useful and has given so far helpful results, the ultimate proof will be in its more widespread and continued use.

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Taylor, Calvin W. *Widening Horizons in Creativity: The Proceedings of the Fifth Utah Creativity Research Conference.* New York: John Wiley & Sons, 1964, 466 pp.

Despite the ingenuity, variety, and amount of research on creativity, it is almost as difficult to write about the creative process as it is to tell about the nature of ESP. Even creative people themselves are generally unable to describe it.

Frank Lloyd Wright savored the preparation and ingestion of a baked Bermuda onion when he felt the creative urge coming upon him, according to Robert Broward, one of his students and a creative architect in his own right. Memphis Wood, an artist in residence at Jacksonville University, calls her creative times "great mystical

experiences." Some psychologists have suggested that creative products can come from computers, while some artists, such as Gary Downing, painter and film maker, holds that no product need be involved in a creative experience. Day dreams, absorbing to the dreamer alone, according to him, are creative. Artistic productivity may only be a form of showing off.

Almost all of these views espoused by creative people are found expressed in the conference presentations. From 200 persons nominated because of their work on creativity some 30, or so, participants were selected. Most of these are depicted in a frontispiece group photo. Observers, some of whom participated, were also present. Their papers, and many of their discussions, are presented almost verbatim. The discussions, especially, are humorous, lively, and spontaneous. As might be expected, the discussions, where conformity was abandoned, were often more creative than the formal material. The formal contributions are characterized by some traditionally clever experimentation, some daring observations of behavior, and many indications of ongoing or contemplated research. Taylor, himself, has the earmarks, or the bench marks, depending upon your point of view, of the creative person. For not only were participants and observers intermingled but the formal presentations were, often times interrupted and the comments and responses included. In addition, some of the chapters, the smaller ones particularly, appear to be mostly spontaneous. They vary in quantity from about 37 pages (one of those with an extensive appendix) to four pages. Variations in quality and emotional tone are also apparent.

All in all, the Fifth Utah Conference seems to be a gathering of one big happy family, mostly male, of paper readers and discussants. It is apparent that most of them are familiar with one another's work, methods, and positions. Indeed, at times they are talking to one another (which, really, is what they came to their secluded, ski resort setting to do) rather than to future readers. Occasional requests for clarification are made or implications are volunteered. But no criticisms are voiced.

The papers, grouped into categories such as historical reports, (by Toinbee and L. L. Thurstone, neither of whom was present); creative process studies; the education and development of creativity; criterion and prediction studies; and creativity in special fields and settings, present many viewpoints. They say many things, possibly all things. These are some of the things that they said to this reviewer:

The baked Bermuda note is sounded again and again in noting how complex is the creative process. Indeed, creativity is viewed as being a large but embryonic field, filled with unknowns. No

single characteristic by itself can account for much of the total phenomenon of creativity. Many human characteristics are usually involved in making creative contributions. It is a very complex multivariable phenomenon. Hence, the measurement of creative potential needs must involve a complex battery of scores in order to account for a high percentage of all that is involved. To account for much of creative behavior, twenty or more dimensions of human performance may need to be measured.

In addition to the factor of complexity, Wright's baked Bermuda also suggests preparation or set in enhancing creativity. Set has been found to play an important role. Creative performance is increased by a creative set. Whereas, an authoritarian set decreases creative performance. Hence, creativity is not regarded as a static amount present in a fixed quantity in a person. It is susceptible to a considerable increase under conditions of personal motivation and social support. Role playing or set taking is a specific mechanism for increasing creativity. There is considerable voluntary control over creative behavior. As is indicated in a variety of ways, creativity is something which can change within an individual rather than something that varies among individuals.

An example is given of 18 design engineers who had not produced anything patentable for a year or more. Their manager told them that without patents the organization would not last. He was presented with several patent applications within a month. That rate has continued since. It is felt, by some, that it may be a mistake to look for distant explanations of creative performance when the controlling factor resides in a self imposed set, or in a better notion of how one is expected to act. Indeed, biographical items such as birth order, Boy Scout achievement, and childhood play experiences, and parental characteristics such as mother's or father's dominance, affection, encouragement, strictness, or permissiveness, did not discriminate between creative and noncreative people. Efforts to construct sophisticated inventories might be abandoned and concentration focused on better records of real life, socially significant achievements. Such factors can be used to predict accomplishments.

Creativity as a mystical experience is also developed in an account of the ingestion of psilocybin, the active principle of the sacred mushroom, by semiliterate, lower class, uneducated prisoners. They reported in blunt, nonabstract words, mystical experiences much like those of William Blake. Everyone has this creative potential in his cortex. It is neither a function of good luck nor one's heritage nor the result of elite training. More visions lurk in the cortex of each of us than are to be found in the museums or libraries of

the world.

Despite such a mystical note, one participant, however, was unable to think of any creative performance which could not be facilitated or, indeed, entirely produced by machine. He saw behavior as being merely movement in time and space and almost all such movements are better performed by machines. Some prize winning poetry, for example, was written with the aid of a table of random numbers and a thesaurus.

This kind of definition, requiring something tangible, a product, is, according to another participant and one extremely well known in the field, basic to the kinds of prejudices psychologists have. Creativity can be construed as an internal process, but one that is not always observable and which may be, in some cases, generally unobservable.

But, whatever it is, visible or invisible, divisible or indivisible, creativity can be dangerous. For, in incorporating creative insight into a theoretical solution to a problem, an individual may end by being chained to his "solution" for life, long after the thing has been destroyed. In this sense, an easy leap can be restricting. If it is correct, then it is fine. If it is wrong the person may be out of luck for the rest of his life.

Beethoven was said to use the creative leap method. He would make a first draft, then make corrections by means of cutting the sentences apart and pasting corrections over parts of the original. One of his works was said to contain a large mound of paper. In studying his creative processes, later on, this paper was peeled off. The final version was found to be identical, in every note, with the first.

Be that as it may, it has been found experimentally that an extended effort in idea production leads to an increasing proportion of good ideas. Thus, the second half or an idea list contains more good ideas than the first half. Moreover, a significant relationship existed between total quality and total quantity. The implication here clearly is, if one works on a problem longer, instead of stopping with the first good solution, some better solution will appear. Increased production leads to an increased proportion of good ideas. However, other research has clarified this picture in that while uncommonness and remoteness of relationship increase with time, cleverness does not. Beethoven is vindicated, after all.

Along these lines, the more media used in teaching art the less progress is made in spontaneity and in the aesthetic quality of the productions. Conversely, the more products produced by a medium, the greater is the progress in both spontaneity and quality.

Creative people have long been identified as being independent and flexible. Indeed, so many of the variables which describe creative people

are also those which, in studies of authoritarianism, describe the more liberal kind of people. Thus, creative architects have been found to be free from conventional restraints and inhibitions. Nor are they preoccupied with the impression that they make upon others. Hence, they are capable of greater independence and are ready to recognize and admit self-views which are unusual and unconventional. Rorschach responses showed creative children to be both more sensitive and more independent than their less critical peers.

If conformity is detrimental to creativity, as it seems to be, this speaks poorly for the increasingly structured, rigidly outlined educational programs prevalent today. The American Psychological Association is found to be an outstanding offender in this respect with its multiplicity of evaluative boards and inspecting committees. The ever increasing emphasis on examinations, certifications, licensure, and diplomacies may be leading psychologists into intellectual sterility.

Though creative people have long been identifiable, their test responses are often found to be unreliable—because they are creative and original rather than consistent in their responses. Hence elaborate testing programs may well be lacking in reliability. Indeed, the longer one works in a certain field, the less probable is it that one will come up with a creative solution in the field. For one continually thinks the same thought to the same idea in a given context. If a person switches his field new discoveries are more likely.

As has been indicated, this book is of interest and value to all those interested in the field of creativity, especially those concerned with the widening horizons of problems, methodologies, findings, implications and directions. Its index looks small but it is deceptive. It contained references to those words this reviewer checked it out on, though they were not always to the page he thought that they should be. (Thus, psilocybin is defined on page 81 but the index refers to pages 83-84.)

If you are not creative yourself, a reading of this book will make you the next best thing. For, as Emerson noted, the next thing to an original person is the person who recognizes an original person.

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Schachtel, Ernest G. *The Experiential Foundations of Rorschach's Test*. Basic Books, New York: 1966, 320 pp., \$7.95.

The avowed aim of this thoughtful, though sometimes laboriously written book is to increase

theoretical understanding of and to refine and improve clinical use of the Rorschach test. The author's approach is labelled as "experiential". This is a welcome and much needed effort to reconstruct, understand and make more explicit the experiences that a testee undergoes in taking the Rorschach test. This focus is then refined by an examination of the testee's reaction to these experiences and of his way of approaching, avoiding or handling the experience of the ink blots in the context of the test task.

The book is divided into two major portions. The first portion contains a scholarly and sometimes pedantic examination of: (1) The Projective Hypothesis, (2) The Experiential Dimension of The Qualities of The Rorschach Inkblots and (3) The Experiential Qualities of The Testee's Reactions. The latter portion of the book contains articles on the determinants of Form, Color, Movement and Shading which have appeared in earlier form in the literature.

The author adheres closely to Rorschach's original presentation in *Psychodiagnostics* (1942), and often makes his own translation of particular points in the German text to correct or bring out a point under discussion. This close attention to the seminal material on the Rorschach test is something that has been long needed in the field, but it does make for slow reading, and often gives one the feeling that he is reading a massively annotated edition of *Psychodiagnostics*. However, this quality of the book does diminish after about the first eighty pages, when the author starts to write more freely of his own ideas about the test.

Schachtel's discussion of the projective hypothesis points out and supports the position that the Freudian concept of projection (Freud, 1916) "plays no role at all in most of the so-called projective techniques." Instead, he describes the testee's response to the Rorschach test in terms of an existential encounter, in which there is a good deal of active structuring and integrating that gives a picture of the testee's adaptive approach to the world.

The important experiential qualities of the Rorschach are seen as being: (1) Unfamiliar Structure, (2) The Positive Impact of the Unknown and (3) The Enjoyment of the blots stimulated by their fantastic quality. These qualities are felt to be important because they allow the testee to be freer and more spontaneous in his response to the test. The major experiential qualities of the testee's reactions are listed as being reactions to: (1) the unfamiliar structure, (2) the quality of the unknown and (3) the absence of rules and guides in the test situation. Schachtel feels that those testee's "whose sensibilities have been starved and impoverished are no longer able to see the full range of the world accessible to

man." This leads to an interesting discussion of the effect of social class and cultural differences upon the Rorschach record. He sees a "strained activity" as belonging to those who fear the unknown and want to quickly restore a world of what is familiar to them. He expects to find this "strained activity" in those who have only been allowed to experience a limited portion of the world psychologically.

Later in the book, Schachtel talks of the deleterious effect of repression upon openness and full free responsiveness. He feels that the play of the child is a necessary ingredient to development, and states that, ideally, there should be an analogous fluctuation between activity and passivity in response to the ink blots. However, he feels that anxiety may result in a freezing of perception at an early and incomplete stage. Two basic modes of perceptual relatedness are outlined by Schachtel as: (1) subject centered or *autocentric* and (2) object centered or *allocentric*. These terms are used to describe the extremes of passivity and activity in relating to the inkblots. The former puts the emphasis on how and what the person feels and with little or no objectification of the stimulus, while the latter puts the emphasis upon what the object is like and its active evaluation.

The above discussion then leads naturally into the chapter on Form, which is by far the most interesting section of the book. Form perception is discussed as an active perceptual attitude that performs the adaptive function of objectifying the world. This point of view probably flows from the author's analytic orientation and certainly fits well into some current thinking on development. There is then a probing examination of the nature of form perception which culminates in the development of the concept of the "perceptual hold." This concept describes the importance of form perception to the development of reality testing, and to the nature of the orientation of the individual toward the world. The "perceptual hold" may be either healthy or pathological, flexible or rigid and is viewed as giving the person a feeling of security and a point of view from which to view the world. This concept is strikingly similar to Shapiro's recently published description of the "neurotic style" (1965), and indicates an interesting congruence of thinking among theoreticians attempting to understand psychological functioning and development.

The chapter on Movement gives a good coverage of the topic. Schachtel feels that "any significant attitude may find expression in kinesthetic responses," but disagrees with Piotrowski's statement that "the M responses always reveal the subject's conception of his role in life" (1947). Since the main disagreement between the two authors seems to center around Piotrowski's

use of the word "always," it would seem that they could actually both be viewed as supporting the position that the movement response reflects changes in overt activity. A recent review article (Ward, 1966) evaluated this question and found these two authors to be in opposition. However, Schachtel does leave his position on this point rather unclear, since he also states that he sees an "inhibition of motor activity in the act of kinesthetic perception."

Echoes of the "neurotic style" and the "perceptual hold" are heard again in the chapter on Shading, in which the author comments on the "assertive" component to some of those responses.

Finally, the book closes with an excellent chapter on the interpersonal aspect of what the author calls the Rorschach-test situation. This chapter emphasizes the effect that both the past history and present perceptions of the situation by the tester and the testee can have upon each other and upon the resultant record. This topic is discussed in some detail with the use of many excellent clinical illustrations.

The author has succeeded in his attempt to provide new insights as to the meaning and use of the Rorschach test. However, the extremely detailed and recondite manner of presentation of much of the material, restricts the use of this book to those professionals who have a comprehensive understanding of the test in addition to the will to plow through some very difficult reading. Also, this reviewer feels that the use of the literary style of footnotes for references detracts from this work's potential as a valuable reference book.

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- Jahoda, Marie & Warren, N. (Eds.), *Attitudes*. Baltimore, Md.: Penguin Books, 1966, \$1.95, 352 pp.

Professor Jahoda is Professor of Psychology at Sussex University. (This is probably the most coveted academic position in the world in the field of Psychology.)

Neil Warren is Assistant Lecturer in the Department of Psychology at Brunel University.

Who should study attitudes, what should they study, and why? *Attitudes*, edited by Jahoda and Warren, contains implicit answers to all three of these questions. Everyone should study attitudes, now that a concise and comprehensive overview of the area can be obtained for only \$1.95. They should study not just one approach to attitude measurement or change, but the approaches of individuals so different in their frames of reference that they usually do not cite each other. Finally, they should do so because attitude is a central concept in most theories of social behavior.

In providing these particular answers to the questions asked, the book fills a niche which has not previously been filled. There are many other books on attitudes, including the entire Yale series on communication and persuasion, varying developmental and change models, and numerous works on measurement techniques. The present work attempts to provide the most significant points from all of them, and comes surprisingly close to succeeding. Only in the area of measurement techniques is the coverage so brief as to become superficial, and that is probably an inevitable consequence of the area being too complex to be summarized in an elementary book.

The book, then, is a collection of perspectives on attitude as diverse as the views which the blind men had of the elephant. Surprisingly, the reader is able to put together the behaviorism of Campbell and the phenomenology of Asch, the experimentation of Janis and King and the interviewing of Lifton, the more precise and limited models discussed by Zajonc and the broader psychoanalytic approach of Bettelheim, and reconstruct the elephant. While the editors have not written substantial connecting passages to integrate the various approaches, they have selected materials in such a way that they seem to integrate themselves. The result is coverage of the field which is surprisingly comprehensive for less than four hundred pages.

Perhaps the strongest aspect of the book is its focus on the content of attitudes. It is easy, in becoming immersed in either the techniques of attitude measurement or in formal models of attitude change, to forget why anyone would want to study attitudes in the first place. The present work includes a number of selections which are frankly descriptive. They raise such questions as why Catholics do not vote conservative in either Britain or the United States, what determines whether West Indian leaders will support

cynical, and how Austrian workers reacted to unemployment. These sections remind the reader what the quest is for, and keep the methods and models from becoming sterile.

If there is an ideal for a book review, it is probably that it should provide a balanced account of the strengths and weaknesses of the work and enable the reader to make up his own mind which predominate. It is seldom that the reviewer is tempted to deviate from this ideal, for there are few books which strike any reviewer as

so excellent that he can find nothing to criticize and only a few more in which he can find nothing to commend. For this reviewer, *Attitudes* is one of the rarest exceptions, a book in which he would find it difficult to change a single word.

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BOOKS FOR REVIEW

The following books are available for review. If you wish to review one of them please write to the Executive Editor, Walter G. Klopfer, Ph.D., 7111 S.W. 55th Ave., Portland, Ore. 97219:

- Szekely, E. "Basic analysis of inner psychological functions," *The British Journal of Psychology*, London: Cambridge University Press, 1965, 130 pp.
- Stekely, Wilhelm. *Peculiarities of behavior Vol. II*. New York: Grove Press, 1964, 337 pp, \$1.75.
- Reeves, Joan W. *Thinking about thinking*. New York: George Braziller, 1966, 333 pp, \$6.95.
- Mondale, Lester. *Preachers in purgatory*. Boston: Beacon Press, 1966, 243 pp, \$4.95.
- Kleinmuntz, B. (Ed.) *Problem solving: research, method, and theory*. New York: John Wiley, 1966, 406 pp, \$6.95.
- Slater, Philip E. *Microcosm: structural, psychological, and religious evolution in groups*. New York: John Wiley, 1966, 276 pp, \$7.95.
- Smith, Margaret R. (Ed.) *Guidance-personnel work: future tense*. New York: Teachers College Press, 1966, 176 pp, \$7.75.
- Hudson, Liam. *Contrary imaginations: a psychological study of the young student*. New York: Schocken Books Inc., 1966, 189 pp, \$4.95.
- Szondi, Leopold. *Schicksalsanalyse*. Basel/Stuttgart: Schwabe & Co., 1965, 529 pp.
- Harvey, D.J. (Ed.) *Experience, structure, and adaptability*. New York: Springer, 1966, 406 pp, \$9.00.
- Semeonoff, Boris (Ed.) *Personality assessment*. Baltimore: Penguin, 1966, 352 pp, \$1.95.
- Vernon, M.D. (Ed.) *Experiments in visual perception*. Baltimore: Penguin, 1966, 447 pp, \$1.95.
- Bindra, Dalbir & Stewart, Jane. *Motivation*. Baltimore: Penguin, 1966, 352 pp, \$1.95.
- Bellack, A.A., Kliebard, H.M., Hyman, R.T., & Smith, F.L., Jr. *The language of the classroom*. New York: Teachers College Press, 1967, 274 pp, \$4.75.
- Chapman, J.D. *The feminine mind and body: the psychosexual and psychosomatic reactions of women*. New York: Philosophical Library, 1967, 325 pp, \$6.95.
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- Raychaudhuri, Manas. *Studies in artistic creativity*. Calcutta: Rabindra Bharati Univ., 1966, 256 pp.
- Raph, Jane B., Goldberg, Miriam L., and Passow, A. H. *Bright underachievers*. New York: Teachers College Press, 1966, 289 pp, \$6.75.
- Ahsen, Akhter. *Eidetic psychotherapy*. Lahore, Pakistan: Nai Matboat, 1965, 246 pp.
- Megargee, E. I. *Research in clinical assessment*. New York: Harper & Row, 1966, 702 pp, \$14.75.

Announcements

7th INTERNATIONAL CONGRESS OF RORSCHACH & OTHER PROJECTIVE TECHNIQUES

This Congress will take place in London, England during August, 1968. It is co-sponsored by the British Rorschach Forum, the Society for Projective Techniques, and The International Rorschach Society. The theme will be "The Projective Approach to the Study of Personality". The program is being arranged by an international advisory committee, including several members of the Society for Projective Techniques. There will be plenary sessions with five main themes:

1. Theoretical Advances
2. Contribution of contemporary philosophy to projective theory.
3. Projective techniques in social studies and preventive mental health.
4. The use of projective techniques in diagnosis, therapy, and rehabilitation.
5. Projective techniques in the study of child development.

In addition there will be smaller meetings for individual papers, discussions on special topics, and informal groups.

Those interested in the details of the Congress are encouraged to write to:

Mrs. Celia Williams
Chairman of the Administrative Committee
32 Willes Road
London, N.W. 5

She will be glad to supply registration forms and furnish further details.

7th INTERNATIONAL CONGRESS on MENTAL HEALTH

Also in August, 1968 there will be a meeting of the World Federation for Mental Health. The theme of this meeting will be "Keys to Progress - Mental Health Education", and the program will be linked to the World Federation's present three-year program on "Mental Health Aspects of Education". There will be invited speakers at plenary sessions, in addition to small groups. For those who would like to have further information about this meeting, it would be advisable to address:

The Organizing Secretary
7th International Congress on Mental Health
39 Queen Anne Street
London, W. 1, England

* * *

1967 Revision of the APA Publications Manual

Beginning with the October 1967 issue (Vol. 31, No. 5) the *Journal* will adopt the stylistic format as outlined in the 1967 revision of the APA Publications Manual now available for \$1.50 from the American Psychological Association, 1200 17th Street N. W., Washington, D.C. 20036. Newly submitted manuscripts should reflect the 1967 revised format.

RORSCHACH — BIBLIOGRAPHY

1921 — 1964

Classified List of the Publications on the Rorschach Inkblot
Psychodiagnostic Method
English, French, German

Edited by Dr. A. Lang

1966, 191 pages, cloth, SFr./DM 36.—

The "Rorschach" is one of the most if not the most widely used personality tests all over the world. This comprehensive bibliography classifies and lists the immense literature of the field. It is an indispensable working tool to both the researcher and the practitioner.

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Symposium:

"The Role of Experiential Data in Personality Assessment"¹

Introduction

Robert M. Martin, *Chairman*

Understanding the world of inner experience is the most important goal of psychology—for some psychologists. Other psychologists consider such an endeavor futile. They maintain that only observable responses are relevant to prediction and control and that experiential data are too elusive to meet the demands of precise measurement. They may add that the world of experience is the proper study of the artist with his intuitive method, but the wise psychologist should not trespass into the artist's domain. Spurned by their super-rational colleagues, the advocates of experiential data may spitefully elaborate an obscure and private language and feel that their exquisite sensitivity compensates for their unintelligibility.

Although there has been some exaggeration in drawing the distinction between those psychologists who are and those who are not interested in inner experience, a real conflict often does exist between them. Such a conflict is not inevitable. Going beyond a simple assertion that experiential data are a legitimate concern for psychologists, this symposium demonstrates that such material can be used sensitively yet with discipline, its applications can be taught,

and particular dimensions of inner experience can be defined and assessed. Such an understanding can help refine personality assessment and lead to more effective prediction and control.

The participants of this symposium have all made significant contribution to the productive use of experiential data in personality assessment. Dr. Ernest Schachtel, both as a writer and teacher, has exerted an important influence in clarifying the major dimensions of experience, their developmental course and the way we understand and evaluate them. Dr. Joseph Lyons, an experienced clinician and student of phenomenology, has persuasively advanced phenomenological psychology as a basic orientation toward clinical activity (Lyons, 1963). Dr. Martin Mayman's close attention to the process of clinical inference has enabled him to communicate and to teach with unusual success the need for sensitivity to experiential material. Dr. Robert Holt effectively brings to bear in his discussion his many talents as researcher, clinician and theoretician.

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Experiential Qualities of the Rorschach Ink Blots¹

ERNEST G. SCHACHTEL
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It is a special pleasure for me to participate in this symposium because ever since I have thought and written about Rorschach's test it has seemed to me that *experiential data* are at the very center of what we study when we try to understand and interpret a Rorschach record. I believe that this is so whether the clinician interpreting a test is aware of it or not. The nature of the test data can be described as consisting primarily of experiences of the testee while taking the test and of his reactions to these experiences. As you know, Rorschach (1942) wrote that from his test, specifically from the experience type, one could see, not *what*, but *how* a person experiences. If we acknowledge any validity to this claim, we must assume that the test data and the abstractions from these data as represented by the score and the psychogram are based on certain qualities of the testee's way of experiencing. I believe, indeed, that not only the experience type in the technical sense of this term, that is, the relation of the movement to the color responses, but the entire test shows us something of the way in which the testee approaches, avoids or limits and in which he handles his experience of the ink blots in the context of the test task. I have attempted to demonstrate this in my book, *Experiential Foundations of Rorschach's Test* (Schachtel, 1966) and to show especially that the determinants: form, color, movement, shading represent and typically result from certain perceptual-experiential attitudes and that these attitudes furnish the rationale for the meaning of the determinants. This implies, of course, that such qualities as form, color, shading and those dynamic

factors of the blots which stimulate movement responses are not only different physical properties but also experiential qualities of the blots and that where the testee reacts or fails to react to them and where he reacts to them in one way rather than another, his reactions tell us something about the way he experiences or fails to experience these qualities.

Today I want to draw your attention to some experiential qualities of the Rorschach ink blots which are not reflected or caught in Rorschach's or other scoring systems but also give rise to significant reactions of the testee that can enrich our understanding of his personality. I shall distinguish qualities *common to all ten Rorschach blots* and qualities *particular to individual ink blots* but absent or less prominent in others. Since I cannot cover in the time allotted to me all of the material that has come to my attention, I must refer you for a more complete discussion to the book mentioned before.

When I use the terms experience or experiential, I refer not only to conscious experience, to experience taking place in focal awareness, but also to unconscious, peripheral and other marginal experience of which the testee is not consciously or not articulately aware. When I speak of experiential qualities of the ink blots, I refer to qualities that cannot be described adequately by measurements such as used in physics and mathematics, just as the experiential qualities of a landscape or a painting or a human face cannot thus be described. They can be described only from the perspective of human experience, the experience of a man looking at the landscape or at the ink blot. This implies that not all people will experience the landscape or the ink blot in the same

¹Parts of this paper are based on material since published in a book (Schachtel, 1966).

way. They will respond selectively, one to some, another to other qualities of the ink blots. Yet, all these qualities are aspects of the ink blots, and most of us can experience them all, if our attention is drawn to them even though spontaneously each one of us might experience one rather than the other quality.

I want to single out first two qualities that are common to all ten ink blots. One is the *unfamiliar structure* of the ink blots, the other their *ambiguity*, the many different ways in which they can be seen and interpreted. I believe that these two qualities have a strong experiential impact on the testee, the nature of which differs in different testees. It is often said that the Rorschach ink blots are unstructured. I do not think that this is true. But their structure, Gestalt, shading, coloration is *unfamiliar* to the testee. This quality has many important implications. One of them, as you know, is that the unfamiliarity and the ambiguity of the ink blots make it possible to see the *difference* in the way different people see, experience and respond to them, differences which would become not at all or much less readily apparent if we showed them a familiar object. While this furnishes the basis for the whole test, I want to draw your attention to another quality inherent in the unfamiliar structure of the ink blots, a quality that I can describe best as the *experiential impact of the unknown*. The significance of the encounter with the unknown is based on man's basic capacity of *openness toward the world*, which distinguishes his world from the much more closed world in which even the higher animals live. The encounter with the unknown, the new, the unfamiliar is apt to reveal how much of this openness, usually at its peak in childhood, man has maintained or how much he lives in a closed world, protecting himself from such encounters. These two possibilities are based on the fact that to man the unknown is both frightening, so that he wants to flee from it, and challenging, inviting exploration. Whether the anxiety aroused by the unknown

wins over the wish to expand one's relatedness in the encounter with the unfamiliar, or whether the anxiety is overcome by this wish decides the fate of man's basic openness toward the world (Schachtel, 1959). Similarly, the small "world" of the Rorschach ink blots invites exploration, and the test instruction: "What might this be?" asks for it. While practically all testees understand this explicit question, the unspoken invitation presented by the strange, unfamiliar, phantastic ink blots is heard and accepted by some, unheard or avoided by others. Some feel intrigued by the ink blots and welcome their challenge, others feel consciously or unconsciously frightened by them; they feel like a fish out of water when asked to leave the secure and "known" world of familiar objects² of their environment for the strange and ambiguous world of the ink blots.

A familiar object is easily disposed of unless one tries to see it from a perspective different from that which has made it familiar. The unfamiliar object is potentially capable of renewing and bringing to the fore man's basic situation: of being in the wide open, the pathless, with few innate patterns to guide him, of having countless possibilities of finding *his* way in and to the world open to him. This situation is both his glory and his predicament; it constitutes his potential richness, his freedom, as well as it threatens him with anxiety, from which he may try to escape by protecting himself in a closed, but stagnant world of a repertoire of familiar pathways. I believe that the sensitivity of Rorschach's test to anxiety reactions is based mainly on the combined effect of the phantastic, unfamiliar quality of the ink blots and the non-directive struc-

²Of course the "familiarity" of even the most familiar object is due only to the fact that usually we approach it from the same inner perspective, hence do not discover the inexhaustible depth and variety of unfamiliar aspects under which it may be seen. To discover these other aspects is the work of creative experience such as is found among the great painters, poets, scientists, but also among all those others who have preserved and expanded the child's capacity for wonder and discovery.

ture of the Rorschach test situation, and only secondarily on the specific stimulus of the pronounced shading of cards IV, VI and VII which the Rorschach literature usually treats as the main catalyst of anxiety reactions. It is the impact of the unknown, the unfamiliar, which may lead to what I have called orientation shock in card I and to a predominantly defensive handling of the test task.

Not only are the ink blots unfamiliar to the testee (even if he should have seen them before), but their ambiguity allows for very many *possibilities* of perceiving them and, in responding, giving definite form to one or another of these possibilities. In this respect they confront the testee with a freedom of choice and with the predicament of this very freedom. This touches upon a basic condition of human existence which has been a major subject of Kierkegaard's (1844) thought. He wrote that anxiety is the dizziness of freedom arising when freedom looks into the abyss of its own possibilities and grasps at finiteness in order to find a hold in it. But in trying to find a hold in the finite, freedom loses itself (Kierkegaard, 1844, pp. 56-57). Man is confronted throughout his life with many possibilities of how and what he could or might be or do. He can play with some of these possibilities; indeed he has to play with them as most children do, in order to arrive at choices. But if he does not go beyond this, his play becomes idle as it often does in our day dreams. This may arouse the anxiety of by-passing life. If we do make choices and act on them, we give up part of the freedom of unlimited possibility. And if the choice becomes a protection against the ever renewed challenge of the freedom of being able to live, think, act in ways other than the accustomed ones of social role, habit, custom, routine, then we may experience the anxiety of un-lived life, of being dead while we are still living.

In some respects, the miniature world of the unfamiliar, ambiguous ink blots resembles this situation in that the test task poses a question to which there is no "correct" answer although there are

a thousand answers. And even after the testee has given a response to the question, it still remains open because it is possible to give innumerable other "answers." The testee, confronted with the "abyss" of the possibilities of the ink blot, has to decide which of the possible answers he will give and at which point he feels that he has met the task to his satisfaction even though he may be aware of the fact—not all testees are—that there remain other possibilities. For quite a few people this decision is practically impossible to make, at least without the—real or imagined—approval of the tester.

There are still other qualities which all the Rorschach ink blots have in common and which have a significant bearing on the way in which they are experienced by the perceiver. They have a *phantastic* quality. Their *size*, while not exactly alike in terms of geometric measurement, remains within a certain *scale*. If they were significantly smaller or larger, the quality of their impact would be changed. As Rorschach pointed out, they have a *picture-like* quality and a certain *spatial rhythm* (Schachtel, 1966, pp. 25-30). Instead of discussing these qualities, however, I want to turn to some experiential qualities characteristic of *individual ink blots* or shared by some and not by others. Rorschach has discussed briefly some of the different qualities of the various blots; but most of his observations concern the degree to which the different blots stimulate or make difficult the giving of Whole, Detail, Space, Form and Movement responses; the presence or absence of color; and the differing degree of difficulty of finding responses to the different blots. But he also mentions that card IV is generally considered as "beautiful" but difficult to interpret, and that card VIII is harmonious in color and form, card IX unharmonious (Rorschach, 1942, p. 52). These last observations refer to the aesthetic appeal of the blots, a significant type of experiential quality, but only one among many such different qualities in the individual ink blots. These qualities can

be described best by pointing out a variety of *perceptual themes* some of which are more likely to be evoked by certain ink blots while others are more characteristic of others. I shall give a few examples of such themes and then discuss briefly methodological problems of interpreting responses to the experiential qualities inherent in these themes.

To clarify the nature of these experiential qualities and the method of interpreting responses to them, I want to contrast them with the frequent use or misuse of two themes often ascribed to cards IV and VII and the equally frequent fallacies that occur when responses to these cards are interpreted in the light of these themes. I am referring to the very widespread teaching according to which card IV is the "father" card and VII the "mother" card (Brown, 1953; Rosen, 1951; Sims, 1960) and to the even more reckless proposition that the testee's perception of the two dominant figures in cards II and III reveals his unconscious (II) and conscious (III) perception of the relation between his parents and that the testees react to card V "as to themselves or their concepts of themselves" (Richards, 1958). While none of these authors claim that cards IV and VII always are the "father" and "mother" cards, respectively, the belief that this meaning can be assumed regularly is very widespread. In many years of teaching advanced students of Rorschach, I have been told by a great number of them that they have been taught this. I do not know to what extent these reports are reliable and to what extent the student's need for a fixed meaning may lead to a distortion of what he has been taught.

If the implications of such teachings were valid, they would constitute important experiential qualities of cards IV and VII. However, they are mistaken on several grounds. First, they confuse *specific content* with *perceptual-experiential quality* of a blot which may or may not be related, in the testee's experience, to such specific content. Second, where the testee does not see a man or such equivalents of a man as a power-

ful animal, a monster, a giant, etc., in card IV, the assumption is often made that, nevertheless, his response refers to "father," possibly in the form of denial. Such fixed assumptions would certainly simplify the task of interpretation if they were valid. However, it is misleading to believe that any specific content can be assigned to any particular card and to use such a belief as the basis for the further assumption that, whatever the testee's response to that card may be, it will have some relation to the assumed meaning of the card. Instead, it is more fruitful and relevant to examine the perceptual-experiential qualities of the different cards and the reaction, or absence of it, to these qualities. Card IV, for example, may be experienced as something massive and dark but also as mysterious or, according to Rorschach's observation, as beautiful. If it is experienced as massive and dark, this may arouse anxiety or it may arouse feelings of identification with something powerful. Where it arouses anxiety we have no way of knowing, without further data, whether the testee's proneness to anxiety originates in his relation to his father or whether the most significant, powerful and anxiety-arousing person in his life was his mother and his proneness to anxiety derives from his relation to her or from what other source it may stem. Similarly, such experiential qualities as lightness, softness, gracefulness, precariousness, openness which may be seen and often are seen in card VII, are by no means always related to the testee's experience of his mother, or of women in general. What is significant is to what experiential qualities of the various blots the testee is selectively attentive or inattentive and what the quality of his reaction to them is.

I have just mentioned a few experiential qualities such as massiveness, darkness, lightness, softness, precariousness, openness. I want now to illustrate in more detail what I mean by experiential qualities of, or as we might also call them, perceptual themes typically evoked by some of the blots. A whole

cluster of such themes is intimately related to man's experience of himself in the gravitational field of the earth. These themes are manifested, literally, in man's stance, posture, gait, and other expressive components of his movements; figuratively, in the whole conduct of his life. They are reflected and play a significant role in his experience of himself and feeling about himself: how firmly or shakily, how rigidly or flexibly, how balanced or precarious he stands and moves on the ground and in his life. Language testifies to the ubiquitousness and significance of this theme in man's life with such expressions as to stand one's ground, to be an upright person, to take a stand, to be steadfast, and their opposites, such as to waver, to falter, and so forth. Erwin Straus, in an illuminating essay, analyzes the implications of man's upright posture which is central to the many problems inherent in the theme of man's relation to the ground he stands on (Straus, 1949). The experiments of Witkin and his associates on the perception of the upright and of the position of one's body and on the maintenance of the upright posture throw interesting lights on and raise many relevant questions concerning this theme (Witkin, 1949; Witkin, Lewis, Hertzman, Machover, Meissner, & Wapner, 1954).

In responding to the Rorschach blots many people project their conscious and unconscious feelings concerning this cluster of themes onto the blots. One of these themes can be described as that of the *solid base* versus the *precarious base*. This theme is most frequently evoked by blots VI, VII and IX, in which the lower D area (in the case of VI scored as W by Klopfer) can be perceived readily as the base for the rest of the figure. Card VII is of special interest in this context. In the frequent perception of the bottom D of VII as the base for the rest of the figure, most people consider this base as solid. This percept changes when the base is seen as a cloud. It changes also when the perceiver focuses on the fact that the bottom edge of this base detail curves upward from its center and, thus, does

not seem to them to rest firmly on the ground. This relatively infrequent percept, because of the unusual focus of attention, is a rather clear indication of some preoccupation with the security of the base. So is the more frequent one in which the focus is on the narrow links between the bottom D and the four upper D of Card VII with the feeling that the connection of the upper figures with the base is precarious. Sometimes the theme of the base occurs also in card IV; here some testees may remark that the feet of the human or human-like figures often seen in this blot do not stand on the ground but, in relation to the bottom center D, are up in the air. Some of them will account for this by seeing the figure as seated on the bottom center D, with feet dangling, while others will emphasize more the lack of something to stand on. Even those who see the figure as seated with feet dangling express in such a response the feeling that the feet are up in the air. This contrasts with the more usual perception in which the figure is seen as standing, walking or jumping up and down. The contrast is significant since the latter percepts lack the preoccupation with the ground to stand on while the former may be due to such a concern. Even more striking is the search for a base or ground where the structure of the blot does not suggest a base. I have observed this in a few records in card V where some testees expressed the feeling that the animal or person seen in the whole or in the center D of V had nothing to stand on? The theme of the base may appear in the form of a selective attention to the reassuring presence of a firm base or in the form of doubts in its stability or solidity, of percepts concerning the secure or precarious way in which figures stand or rest on the base, or in the form of concern or fear about the absence of a firm base. A marked appearance of these themes usually points to the testee's feelings of insecurity

³This percept is, of course, very different from the frequent one in which a bat, bird or butterfly is seen as flying.

which takes the form of concern whether he has a firm ground to stand on or whether he can stand firmly on his own feet, figuratively or sometimes also literally. He may or may not be aware of these feelings.

Another important experiential theme concerns the *central axis* or the median detail (mD) of the blots and its explicit or implicit relation to the lateral parts of the blot. This perceptual theme often relates to the testee's feelings of inner strength or weakness, wholeness or dividedness, reliance on self or on protective defenses or on others. Insofar as the central axis is seen as giving or failing to give central, inner stability, hold and support to the surrounding figure, it is also related to another aspect of the just discussed themes of man's experience of himself in his upright posture in the gravitational field of the earth. The theme is evoked usually by those blots in which either the central axis or the median detail are pronounced. This is the case in cards IV, VI, VIII, IX which have a more or less marked central axis extending throughout the blot, and in card I which has a prominent median Detail, the frequently seen person in the center. The central axis together with the symmetry of the blots creates a semblance of many of the blots to organic forms, especially to vertebrate anatomy. Many testees actually perceive a spinal cord in the central axis of some of the blots; both they and many others often identify with the central axis. They may do so by identifying their whole person or only their inner core, their—figurative or literal—backbone with the axis of the ink blot. Where a spinal column or a pole is seen in the central axis, the testee may nevertheless identify his whole person with this percept in the pars-pro-toto mode frequent in primary process thought. These identifications are usually not in clear awareness and often they are unconscious. When there is reason to assume that such an identification plays a role in an axial percept, two questions have to be raised. First, how is the quality of the axis

perceived? Second, what is the quality of the relation between the axis and the lateral areas of the blot?

The axis may be perceived as solid, as a backbone or a pole. Its relation to the lateral parts of the blot, consciously or unconsciously, may be that it gives hold and firmness to them, holds them upright. But it may also be seen as hollow or weak rather than firm and strong, or as indicating a rift or a split between the two lateral parts, or it may have both dividing and uniting functions as, for example, a zipper. Or it may be perceived as a solid object used to sever the two parts, often with aggressive or destructive implications such as a knife, a dagger, the path of a bullet (sometimes seen in the center axis of card VI).

In relation to the lateral parts, the mD may be seen as shielded and protected or as oppressed or caught by the lateral parts rather than as supporting them and being the source of strength and stability. The perception of a soft, vulnerable, weak or fragile center shielded or held together by a tougher or stronger outside (sometimes seen in card VIII) may represent a defensive armour and a body image which resembles the structure of a shellfish or crustacean more than a vertebrate. In still other percepts the testee may see the lateral parts of the blot clinging for support to the center and he may identify with the lateral parts rather than with the center as did Oberholzer's patient in Rorschach's posthumously published case study.

Time does not permit me to describe in detail other perceptual themes of experiential significance. To indicate their wide and varied range let me just mention some of them: unity and dispersal; connectedness and separateness; solidity and fragility; directedness and diffusion;

*Of course, a vertebrate body image does not preclude the concern with the protective or vulnerable boundaries of the body and the self. Thus both, the concern with the strength or weakness of the central axis and the strength or weakness of the protective body boundaries may also find symbolic expression in the same percept.

definiteness and vagueness, formlessness, elusiveness; smoothness and raggedness or jaggedness; fluid and angular lines; openness and closedness; visible space, freedom to move and crowdedness, collision. In addition to these experiential qualities relating to form and structure, there are others relating to color, shading and texture, such as warmth and coldness; softness and hardness; dryness and wetness; smoothness and sliminess; lightness and darkness, and so forth.

In order to interpret the reactions of the testee, it is necessary first to keep the different experiential qualities in mind and to find those responses which refer explicitly or implicitly to them. In some of these responses it is important to find out with which area or quality of the blot the testee identifies himself and, if there are multiple identifications, which is more likely to be conscious and which unconscious, and which is of more basic importance for the structure of his personality. As a rule of thumb one may assume that the recurrence of a similar perceptual quality and of similar dynamic relations points to the importance of the trend expressed in these percepts. Similarly, a sensitivity to very slight structural or other qualities of the blot often is more significant than the more popular reactions to very obvious qualities. Of particular significance is the kind of originality which reverses a commonly or frequently perceived quality of the blot.

Let me conclude with an example of various degrees of such a reversal. Card V probably is the card with most unity, offering the most compelling and easily seen W, in the popular bat, butterfly or bird responses. Usually there is no special articulation of the central axis which, in these responses, is implicitly assumed to be the body of the flying creature, sometimes with explicitly mentioned antennae or ears at the top and legs or a tail at the bottom center. If the wings are seen as disproportionately large, the percept shifts in the direction of less unity and, possibly, an im-

plicit strain on the center axis which becomes explicit if the wings are perceived as too heavy for the body. If, however, this blot is seen as split in the center, or falling apart, this runs counter to the structure of the blot, hence indicates a very significant and strong trend in the testee to experience himself as torn apart or falling apart and finding no central support in himself.

The interpretation of a testee's reactions to the various experiential qualities of the ink blots which are not caught by the usual scores should be made, of course, only in the context and the light of the overall picture emerging from the test material.

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Whose Experience?

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If we have learned anything at all from the years of work by modern clinicians, it is this: that all that anyone has to go on is his own experience. On this fact—that each one of us has immediate access to nothing else than, or in addition to, what he experiences—I think everyone would agree: our panelists, their listeners, and even those who would not come here today because they suspect us of arguing either a lost cause or a foolish question.

But if this is so, as we would all agree, then it is reasonable to ask the question: how in the world do I ever know that what I am experiencing is "mine?" The quotation marks are necessary, because we have still not established that "my" experience is "mine" in the way that, let us say, my automobile is, or my job, or my right arm, or my wife. A related question, and one that is even more central for a clinical discipline, is this: how in the world do I ever know what part of my experience is mine and what part is yours? For example, when I am in a situation with you, I have some experiences, and they are, of course, immediately and necessarily "mine"—but if they pertain to you and to "your" experiences, as of course they necessarily do, what is mine and what is yours? Do I know my own experience in the same sense that I know yours?

Well, fortunately for our topic, the answer to *this* question at least is quite clear. As we would all agree, I know my own experience in the sense that, to me, it is immediate; and I know yours in quite another way, in the sense that it is once removed. This is how I can easily tell the difference. There will

be extreme cases, of course, in which a person may not be able to make the distinction: he will confuse what *he* thinks or believes or fears or wishes with what properly belongs to some other person. Indeed, clinicians have names for such states, and so we teach our students how to recognize and label the states—even if as yet we know little about how to alter them for the better. But even though we may not know too much about what causes the failure to distinguish an experience of "mine" from an experience of "yours," we are, I think, fairly clear about the difference. Indeed, it is simple enough to imagine a continuum that we might label Mine-Not Mine, and then to think of examples of experiences that belong at either end of the continuum. A very good example of an experience that is clearly, evidently, immediately Mine, is the experience of sudden pain. When this occurs to me, and at the moment that it occurs to me, there is no possibility that I could mistake it for an experience that is happening to you or to him or to no one at all. You may recall the little anecdote about the Zen master who answered his disciple's plea for a revelation of the truth by beating him soundly with a stick. Whatever this may signify in the Zen mystique, to me it makes precisely the point that I am making here: that the experience of sudden pain is immediately, unmistakably, and if I may say so, *truly* Mine, without any doubt; it has the very ring of truth that the Zen disciple might have been vainly seeking in a world of false or misleading communications.

Just as clear an example of what is Not-Mine, at the other end of our continuum, is my experience of the content of a mathematical formula. If I am asked to complete the expression,

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"Three times seven is . . ." I will have no difficulty in suddenly saying "Twenty-one." In one sense, my experience at this moment is an experience of three multiplied by seven equalling 21. But clearly, *what* I experience here is not Mine in the sense that the pain was Mine. I need not pursue this point, except perhaps to remind you that a simple rule for distinguishing between Mine and Not-Mine experiences is to inquire whether they have to be learned, as such. All of us come equipped, as it were, to have our own individual experiences of sudden pain, and to recognize them, as such, when they occur; but it is only by virtue of some years of experience and training, not always completely successful, that we become capable of having experiences of the Not-Mine type, such as those involved in the more abstract disciplines of arithmetic or history.

Now, I suspect that at this point it will occur to you that many of us have been over this ground before. We have read books, perhaps even written them, about what is real and what is not, and about such topics as verbalized and un-verbalized experiences. In short, I seem to have started a rather unoriginal discussion about a dreary old problem in metaphysics. But now let me use the problem itself as an introduction to what I hope will be a clinical paper concerning kinds of data and ways to communicate them.

For as I hope you have also recognized, what I have been talking about thus far leads directly into the topic of communication in the clinical situation. This is what clinical data consist of, as we would all agree: the communication of experiences. And what I have been talking about, up to this point, is the kind of experience that might be communicated. With this as an introduction, then, I will now re-define my continuum. Instead of defining it in terms of the distinction Mine vs Not-Mine, I will define it in terms of two very different kinds of data that are communicated. I hope to show that it will be very useful to talk about different modes of exper-

ience in terms of the data that they generate.

Consider the ordinary case in which you, as a clinical examiner, obtain some data from a test subject. You hope, of course, to obtain data that are—now, what terms shall we use here? Let me try a few . . . You would like to obtain data that are pure, spontaneous, genuine, utterly revealing—in short, data that are uncontaminated. To take one obvious example, what you definitely do *not* want are data that the subject invents just to trick you or even to keep you happy. We have no terminology that fits the issue I am discussing here—and in fact, I am going to propose a terminology on the basis of the analysis that I am pursuing. The obvious example I have just mentioned gives us a clue as to the kind of data that you *would* like to obtain. If what you do *not* want are data artificially produced by a subject who knows quite well what he is doing, or who behaves in terms of some motive that is independent of the purposes for which he is being tested, then it follows that the data you *do* want are those that might be produced by the subject who goes along completely and without reserve with your purposes as examiner.

You will grasp what I am suggesting here—that the latter type of subject, the one who goes along, so to speak, who provides the kind of uncontaminated data that you want, behaves very much like the person who experiences a sudden pain. He is spontaneously caught up in the experience. He gives in to the experience and to the situation; one might almost say that for the moment, *he is* the experience. The one thing he cannot do, at least *at the moment*, is to provide data to fit some ulterior motive.

This is our clue, then, to the distinction between two kinds of clinical data. At one extreme there is a kind of data communicated out of the experience of a subject who is utterly caught up in his, and your, situation. At the other extreme there is a kind of data which reflects the experience of a subject who remains quite free of the situation, free

to pursue his own, independent motives. A subject of the first type, if we would ever find him in pure form, would perhaps be impossibly naive, or completely victimized, or totally confused and overwhelmed. A subject of the second type, almost as unreal a creature, would be fully aware of the significance of the situation for you and for him, and he would utilize this full awareness as his own motives directed him.

Both types of persons, at least in their extreme forms, are likely to be rare if not non-existent. Every subject whom we meet will, as we know, show some combination of the features peculiar to the two extremes. That is to say, what we have here is another continuum—but this time not a continuum of Mine-ness but of a peculiar species of awareness. It is a continuum of awareness *about* one's own experience. This is not awareness in the simple, familiar sense of conscious awareness. Rather, I mean by this a second-order awareness, a level of awareness that is always overlaid on the conscious awareness that the person manifests in a situation. To repeat, this second-level awareness is evident because in every situation, clinical or not, every person except the impossibly naive or the utterly overwhelmed will know, in some way and to some degree, *about* his own experiences. He will have experiences, as we know—but he will also have some degree and kind of awareness *about* these experiences.

The two orders of awareness may usefully be viewed in terms of the discriminable kinds of clinical data which they provide. If the data that arise directly from conscious awareness may be termed *primary data*, then this second kind of "about data," arising from awareness about one's experience, might properly be called *meta data*. I propose that these two classes of data, in some combination, are what you, as examiner, will obtain from every subject, no matter what the situation, no matter what the test.

I have written in another connection (Lyons, 1963) about one well-known instance in which the subject produces

practically nothing but meta data. This is the kind of behavior that we call *malinger*—and it occurs, of course, when the subject is in control of his own situation; he knows, or thinks he knows, just what the examiner is after; and he chooses to substitute his own purposes for those of the examiner. *Malingering* is therefore a situation in which there are two men in the examiner's seat. Both persons are equally aware of the situation and of their experience in it, and in this sense both are furnishing mostly meta data—although in this instance the coincidence of their experiential situations does not hide the fact that they are, in fact, working at cross purposes.

It would appear that objective tests, such as the MMPI, may be used with confidence only if the distinction between primary and meta data is rather thoroughly blurred. The first important argument in favor of such a position was offered by Paul Meehl (1945), in an important article which appeared just at the start of the post-war testing boom. Meehl did distinguish between "what a man says and what he is" (*italics in original*)—that is, between what I am calling meta data and primary data—but he insisted that the tester need only be concerned with treating all data as though they were meta data. That is, one takes the subject's verbal behavior, in the form of a test protocol, and one tries to find relations between this behavior and other data gathered outside the testing situation. Such relations, if they are found, constitute the substance of a clinical science. In one stroke, then, Meehl bypasses the distinction that I am making here. It is an ingenious trick, no doubt about it; and it is made even more impressive by the skill with which its author introduces a significant problem only to cover it over. But the problem remains, quite evidently, in the very use of the expression, "what a man is." For as soon as one admits such a conception, and therefore as soon as one distinguishes it from the notion of what a man *says*, then one has agreed that in fact there may be two kinds of data,

not one. If they are thus discriminated, they may not be the same—and if this is so, then all the correlations in the world will not indicate the varying strengths to which they contribute separately to the final test protocol.

In quite a different theoretical camp, we find another error that is, I think, equally egregious. This consists of claiming for the therapy situation the special virtue of providing pure data in the form of "authentic" revelations concerning the true being of a person. You will recognize the currently fashionable terms that I have just used—borrowed, apparently, from writings in ontology and metaphysics. In philosophy the problems are all on paper, and so they seem deceptively simple; whereas in the clinical setting the problems arise out of, and exist within, the ongoing, fumbling, hopeful, confused, and sometimes miraculous encounter between two limited persons. There are no formulae to guarantee success in such a meeting—certainly not in the form of a reliance on one or the other extreme of our continuum of awareness. A reliance on one extreme, in the guise of a simple faith in the value of pure meta data on the MMPI, merely narrows the clinician's view until he fails to understand even the data that he obtains; and at the other extreme, a new set of tricks for obtaining data that are defined as primary rules out just as many of the possibilities inherent in the clinical situation.

As an introduction to considering some relevant clinical material, consider again the example that I offered of uncontaminated primary data—the spontaneous gasp of pain. The weakness in this example is that it does not consist of any spoken words, and so it serves poorly as ordinary communication. Far more central to the purposes of the clinician is an example—if we could find one—in which a verbal communication consisted entirely of primary data. That is to say, we would like to find a communication *made up of words* in which the communicator has, literally, no "second order" awareness of the possible meaning or significance of his

words to the listener. As far as he is concerned, his communication is his experience—like a gasp of pain.

But this seems a contradiction in terms. We seem to be asking that the person produce a meaningful communication in words, and at the same time we demand that he himself have no sense of its significance beyond the immediate experience itself. Or is it a contradiction? The conception that I am implying at this point, of course, occurs when what a person says makes one rather limited kind of sense to him but quite a different kind of sense to someone else—or perhaps to himself at another time or under other conditions. I refer of course, to *unconscious* material. This is why unconsciously determined productions are clinically so useful—not only because they are unconscious, but also because they are not conscious. We have now, as you see, operationally defined them: they consist of productions which usually are, to the person himself, entirely primary data; that is, the person himself produces them and experiences them but has no means of having an awareness *about* them; they are, for him, just what they are, and to question them is equivalent to asking, "But why did you gasp in pain when I pinched you?"

At the same time, such productions are, to another person or perhaps to the speaker himself under special conditions, largely meta data; that is, they communicate some meaning *about* the experience and therefore *about* the person who had it; coupled with a sound theory, they may even communicate important data about what the person truly is.

The point I would like to stress—and perhaps I have not yet made it sufficiently clear—is that I am not trying to develop a theory concerning conscious and unconscious communications. Rather, I am suggesting a basic set of terms which will make possible an admittedly crude but operational definition of these clinical phenomena. I am proposing that clinical communications be defined in terms of the kinds of data which can

be discovered in them. The MMPI testers hope to find purely meta data; the existential therapists are sure they will evoke nothing but primary data. And what some clinicians have termed unconscious productions turn out to be, when redefined in this way, a unique brand of communication which provide primary data to one listener and meta data to another. Perhaps the proposal that I offer here may help us all as well to understand the continuing quarrel between the proponents of "hard" or meta data and the advocates of "soft" or primary data. Each side claims exclusive utility in its own ap-

proach. What both sides would like, of course, is somehow to have their experiential cake and eat it too—that is, to obtain primary data which have all the scientifically usable properties of meta data. The more extreme members of the hardheaded school would insist that on principle this cannot be done; whereas the members of the present symposium feel strongly that success is possible and has already been partly achieved. I do not say that I have resolved the issue—but perhaps the formulation that I have offered will help to make clear just what the argument is about.

Table 1

Scoring of Sample Protocol (Beck System)

I — D	M+	(H)			D	CF+	Fire		
	D	M-	(H), My			D	F+	Hd	
	D	F+	A		V — W	CF+	Fire, Lit	(z = 3.0)	
	W	M-	Ab, R1	(z = 2.0)		D	F-	(H)	(z = 2.5)
	D	F-	A		VI — D	M+	A	(z = 3.0)	
	W	F-	R1, Anthr	(z = 4.5)		Dd	F	A	
	D	M+	(H)			D	M+	Hd	
	D	F+	Hh			Ds	M+	H, Rc	
II — W	M+	H				D	FC-	Hh	
	D	F+	Hd, Lit		VII — D	CF-	An, Expl		
	D	M+	Hd, Lit			D	FC-	My	
	D	F+	Hd			W	FC.V+	Ls	(z = 3.5)
	W	Mv-	Rc, NA	(z = 3.0)	VIII — D	M+	(H)		
	D	M+	(H), R1	(z = 2.0)		D	F+	Bt	
III — W	F-	Fd	(z = 1.0)			D	F+	R1	
	W	F+	Art	(z = 4.0)		D	F+	Mask, Thea	
	D	M+	H			D	F-	Hd	
IV — D	F+	An				Dd	CF+	Cg	
	D	F-	A			D	FC+	A	
	Ws	YF, CV	Art	(z = 5.5)		D	FC+	H	

Scoring Summary

R	= 40	CF	= 4 (1-)	Ab, My,	
W	= 9 (1 = S)	FC	= 4 (2-)	R1, Lit	= 4
D	= 29 (1 = S)	FC.V	= 1	Art	= 2
Dd	= 2	YF.CV	= 1	Hh	= 2
F+%	= 62	F+	= 10	Rc	= 1
A%	= 15	F-	= 6	Fd	= 1
S%	= 2	F	= 1	Fire	= 2
E.B.	= 13/6.5	H	= 10 (6 = (H))	Ls	= 1
z	= 34.0	Hd	= 6	Bt	= 1
M	= 12 (2-)	A	= 6	Mask	= 1
MV	= 1 (1-)	An	= 2	Cg	= 1

There remains, now, the clinical material that I promised a while back. It would seem most fitting to close this paper with a protocol which epitomizes the distinction between primary and meta data. Such a protocol might be obtained if we obtained responses to a series of ink blots (that is, essentially primary data) from a subject who knew as much about ink blots as did the examiner himself (and therefore could hardly keep from communicating meta data). This might occur, for example, if a Rorschach expert could be persuaded to take a "naive" Rorschach.

Fortunately, this sort of protocol is available. Table 1 shows a scoring summary of a subject's responses to the eight blots of the Roemer series (Roemer, 1965).²

The scoring represents a consensus among ten clinicians who viewed colored slides of the Roemer ink blots and discussed each response. Although not aware of the identity of the subject, they agreed, on conclusion of the scoring task, that the protocol adequately portrayed a gifted, imaginative person with rather

strong depressive tendencies. In addition, a number of the judges felt that the subject typically strained, in almost manic fashion, to achieve beyond the level of his capacities.

Judgments of this sort are particularly useful as evidence in regard to the theoretical questions I have raised in this paper. Such evidence suggests that even the most sophisticated of subjects, though capable of producing mostly meta data, will, if he allows himself to be caught up in the testing situation, also produce significant primary data. For the subject who produced the Roemer protocol above was Hermann Rorschach.

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²The complete protocol may be found in the article cited above. The writer plans to publish a translation as soon as permission is obtained.

Object-Representations and Object-Relationships in Rorschach Responses¹

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Summary: This paper presents an object-relational view of Rorschach content. The existence within the self of images of others is a pre-condition of social development. The availability of a repertoire of personal imagery, the range and emotional quality of one's representations of others, the degree of fusion which tends to occur between self and others, the characterization of self and others, and the kinds of expectancies one carries into each encounter with the people and things of his world — all are facets of a person's relationship potential which, it is suggested, may be inferred from the content of a Rorschach protocol. Patients' general level of psychopathology and some more specific attributes of their psychopathology inferred from Rorschach content proved to be highly effective indicators of the psychopathology revealed in extensive psychiatric, psychological and social work interviews.

When a person is asked to spend an hour immersing himself in a field of impressions where amorphousness prevails and where strange or even alien forms may appear, he will set in motion a reparative process the aim of which is to replace formlessness with reminders of the palpably real world. He primes himself to recall, recapture, reconstitute his world as he knows it, with people, animals and things which fit most naturally into the ingrained expectancies around which he has learned to structure his phenomenal world. This paper explores some implications of the thesis that a person's most readily accessible object-representations called up under such unstructured conditions tell much about his inner world of objects and about the quality of relationships with these inner objects toward which he is predisposed.

An examination of Rorschach content from this point of view aims at answers to such questions as, What kind of world does each person recreate for himself in the ink-blot milieu? What kinds of animate and inanimate objects come most readily to mind? What manner of people and things is he prone to surround himself with? Does he put together, for example, a people-less world of inanimate

objects? If so, which objects have special valence for him? Do they hint at a certain preferred mode of acting upon the world or of being acted upon by it? Are they, for example, tooth-equipped objects? Or phallically-intrusive objects? Decaying or malformed objects? If the person finding his way through the inkblots seems to surround himself with animals, are they animals one can encounter with pleasure and even some affection, or are they creatures so far down on the phylogenetic scale as to seem indifferent, strange, or even revolting? If mammals, are they timid and weak, or predatory and powerful?

What of his images of other people? How successful is he at looking for and finding people in the blots? Are his internalized images of others so painful, so conflict-arousing as to be unavailable to consciousness? Is his hold on others so tenuous, or his rage at others so intense, that images of other human beings are erased before he can actualize those images in finished Rorschach percepts? Is he so far withdrawn from relationships with others as to feel alienated and alone, even in his private fantasy world?

If he does find people in the blots, what sorts of people are they? Does he humanize them and speak about them empathetically, perhaps even with warmth and humor, or does he look upon them coldly, or cynically, or with impersonal objectivity? Do his Rorschach people come across as two-dimensional

¹ Presented at a symposium, "The Use of Subjective Data in Clinical Practice and Research," at the American Psychological Association meeting, September 3, 1966.

figures, or do they seem more full-bodied and real?

In the space available I shall try to discuss the theoretical position implicit in questions of this kind, and will conclude with a study illustrating the potential research value of such an approach to clinical data.

*Rorschach Human Responses
as a Form of Object-Representation*

There is reason to believe that a person's fund of internalized images of others, that is, of human "object-representations," and the feelings tied up in these images, bear the imprint of his formative interpersonal history, and reveal something of his ingrained relationship predispositions. If we assume that a person's Rorschach images comprise a somewhat representative sample of internalized objects, then they have much to tell us about the person's internalized sense of participation in or alienation from his social milieu, as well as his preferences and expectations regarding the composition of that milieu. Hertzman (Hertzman & Pearce, 1947) some years ago gave Rorschachs to a number of patients who subsequently went into therapy. After six months of treatment, the people seen by each patient in his pre-treatment Rorschach were studied by the therapist to determine which of these representations had distinct personal relevance in the light of the material which had emerged in psychotherapy. He found that 75 per cent of all human figures seen in the blots had identifiable (though presumably largely unconscious) personal meaning for the subject.

A pilot study done last year in a post-doctoral Rorschach seminar is equally promising with respect to assessing a person's general capacity for forming object-relationships. The seven best psychiatric residents and the seven poorest psychiatric residents in the Menninger Foundation Selection Project (Holt & Luborsky, 1958) were chosen for special study. Each subject's human responses were excerpted from his Rorschach protocol and were made available verbatim to seminar participants who were asked to identify whether that set of human re-

sponses was more likely to have been produced by one of the best or by one of the poorest residents. The consensus rating of each set of excerpts was correct in nine of ten cases, and in most of these there was near unanimity.² In general, the human beings seen by the best residents were seen by them with a warmth, openness, and sense of contact which set these images apart from other Rorschach responses. The poorest residents either saw very few human beings or expressed clearly an implicit cynicism or bitterness or fearfulness or alienation from the people they described.

Perhaps the most important single contribution to our understanding of the place of internalized representations of others in the formation and stability of a person's ego was made by Pious (1950) in his report of an observation he made in the course of psychoanalyzing an obsessive-compulsive man who had suffered an acute schizophrenic break shortly after he started treatment. Pious noticed that the patient's condition worsened sharply during any unusual period of separation from the analyst, unless the patient were able to retain a mental image of the analyst during his absence. If the image of the analyst were to dissolve, the patient would go into a panic and fall apart until the analyst's return. Only with the analyst safely back could he once again reconstitute his mental image of his therapist. It was clear in the material that the image of the therapist was more than a casual recollection; it represented—almost recreated—for the patient a sense of the enduring presence of a person on whom he had to depend for support.

The phenomenon described by Pious is not very different from the panic which infants experience in the absence of mother when they are too young to hold in mind a stable image of mother to reassure themselves that the mother hasn't vanished. There is reason to believe that the infant's sense of well-

² Four protocols were excluded at random to insure against any tendency to categorize a particular case on the basis of the number of "good" or "poor" ratings already made. Actually, six of the ten records rated were from the top group and four from the bottom group.

being, his sense of secure belonging, is contingent upon the availability and the quality of the personal images which he internalizes, starting with his image of mother.³ The earliest such images are probably largely tactile and coenesthetic, not visual, are certainly pre-verbal, and in their enduring form largely unconscious, but they provide the nexus out of which crystallizes a child's enduring sense of trust. Separation is traumatic for the infant because the internalized sense of presence of his nurturing adults is only tenuously established and easily dissolved. The loss of these representations is tantamount to the total disappearance of support. Without stable internalized good objects, the

child (and the psychotic adult) would be left to his own bewildered, panic-stricken state of aloneness and disintegrating sense of self.

Of course, a person who fails to see human beings on the Rorschach test may not be in such dire straits. He may be too unimaginative or too unintelligent or just too superficial or reserved to permit himself to become much involved in the Rorschach experience. But often enough a person shies off from contact with other human beings in the Rorschach blots because of some severe disturbance of his relationship to internalized good objects. Closeness may carry with it the threat that he will be engulfed and lose his identity, or perhaps he may recoil out of fear of discharging certain forbidden impulses or of acting out some repressed identity-fragment. Under such circumstances repression may extend to the point of eliminating, or of greatly inhibiting the development of seemingly innocuous fantasy-representations of others.

Another form of shying off from human involvement may be expressed on the Rorschach as a dehumanization of figures usually seen as human beings. Such responses are usually prototypes of a corresponding coldness and/or estrangement in the way people are experienced in reality, and are associated with a reciprocal stunting of that person's capacity for making sympathetic contact with others. This form of withdrawal from interpersonal mutuality is perhaps most ominous of all, implying as it does a warping of relationships, a depersonalization of others and a corresponding estrangement of the patient's sense of self.

Empathy and Identification

Any Rorschach image, whether seen in movement or not, and whether of a human being or not, may have important personal meaning. But it is from the human responses that we infer something of a person's capacity to establish empathic contact with another human being.

Early in life, when object-representations are not yet securely internalized, empathy exists only in nascent form. The

³ An experience which tends to support this speculation may provide a useful example of a child's difficulties in this phase of development of internalized object relations. I was sitting with an 18-month-old child while his mother was out shopping. He was asleep, but awoke before she returned and made whimpering noises. I went into his room and he stopped whimpering long enough to look at me. Then he began crying, and soon he was screaming. Apparently he was experiencing mounting agitation. This was at an age when he hadn't yet begun to talk but did understand speech, nor had there been any evidence of fantasy play as yet. (This started shortly after the incident I recount here.) I began talking to him to try to distract him and noticed that when I mentioned "mommy" the crying subsided a bit. So I began telling him a story about mommy. It was a very, very dull story: mommy put on her coat, then she took her hat, then she went out to the car, "and now your mommy is driving in the street, and now mommy is in the street, and mommy is thinking about Johnny and how mommy is going to give Johnny a kiss when she comes home. When mommy comes back she is going to drive into the driveway . . ." etc. As long as I talked about "mommy" he listened and did not cry. As soon as I stopped, the crying resumed. It was for me a dramatic example of the part object-representation plays in the evolving life of a child. So long as the boy could keep an image of his mother in mind—something which he could not yet accomplish on his own without the help of words—he felt reassured. He needed my words to help him stabilize his image of mother. It was not more than weeks later before this capacity seemed to emerge and he became better able to tolerate her absence for short periods of time. Winnicott's work on transitional objects (1953), Mahler's (1961) on object-internalization, and Piaget's on the development of object constancy (Décarie, 1967) are, of course, very relevant contributions to the understanding of such stages in the process of object-formation.

child can imitate others in overt actions before he is able to imitate them in the whispered actions of fantasy. He can ape behavior before he can appreciate and share others' feelings, intentions and points of view. Psychoanalysis has shown that the socialization of a child in this respect is a consequence of his successful internalization of the images of those on whom his life and well-being depend. This achievement is a gradual one, based in part upon the progressive substitution of imagined for overt action, the replacement of impulsive, unmodulated, unreflective behavior by considered, socially appropriate behavior.

Empathy presupposes an earlier stage — introjection — just as introjection may in turn rest on the ability to retain a sensory affective memory trace of the cathected object as a first step in its internalization. But empathy is a higher-level psychological attainment than introjection or identification. Empathy involves a successful two-way relationship in which an experience is shared. In identification, mutuality is replaced by fusion, self-other differentiation is blurred, and the ego to some extent becomes the other, or, by projection, the other becomes an externalized protagonist of a facet of the self or one of its introjects. Identification tends to erase self-other differences and minimizes the separateness of self from other; empathy does not. Empathy draws upon a sympathetic concern for the needs of the other person even if these needs run counter to one's own. Identification is not a process one can be conscious of; empathy often seems to be an act which takes place consciously or preconsciously, in the service of both ego and object.

Empathy and identification as used here are differentiated from each other in terms of the intactness maintained by the ego in interaction with others. In empathy the ego preserves its integrity; there is a feeling with, but not a total immersion in, the experience of the other person. The narcissistic person may sometimes seem to empathize deeply and respond intensely to another person, but this closeness usually proves to be an

essentially selfish act aimed at closing an intolerable gap between self and other. The narcissistic person may be perceptive and adroit in his interpersonal relationships, but this is not yet empathy. He may be sensitive to how people respond to him and may guide his actions accordingly, all the while cut off from others in a way which prevents the development of intimacy or mutuality such as one could find in mature empathic participation. Or, on the other hand, he may be unable to keep from overidentifying himself with others. He may suddenly feel sorry for another person who feels lost, abandoned, who needs to be nurtured. Such unexpected sympathy may seem paradoxically mature in otherwise highly narcissistic people until we come to realize that this, too, is only a form of identification, a reversal of roles which allows him the vicarious experience of being nurtured, and is an act of "empathy" limited to this particular experience alone. Narcissistic women may be very good mothers to their children so long as the child remains relatively helpless and in need of their nurturant care. But, when the child starts becoming an individual in his own right, whose feelings sometimes run in very different directions from the mother's, these women often begin to fail as mothers. The capacity to relate to another person on the basis of identification is there, but not the ability to tolerate sharp differences between self and others. They can form seemingly mutual relationships only by immersing themselves in others, or by engulfing others, or by using others as screens for their own self-projections. Greenson writes about patients of this kind in a number of his papers (1953, 1954, 1958).

When a person calls to mind an image of someone else on the Rorschach test, he invests a small part of himself in that other person with whom he is, for the moment, engaged. His way of relating himself to that other person can be studied not only for its formal characteristics, its style and content, but for the degree of self-other differentiation maintained

in that "relationship." Some such object-representations may strike one as optimally empathic. Others, by contrast, seem to obliterate self-other differentiation, or to narrow too greatly the separation of self from other. The overly "close" object-representations produced in the Rorschach test are unlike the empathic ones in several respects. Such images of others are reported with undue vividness and conviction. There is an intense involvement in the situation or the behavior of the perceived figures. The motives, acts or feelings attributed to the figures may be highly fabulized rather than appropriate extrapolations from objective perceptual properties of the blot. Or, the perceiver may become excessively caught up in the figures he is describing, sometimes to such an extent that his vicarious participation in their doings spills over into an overt enactment of the behavior he is describing.

The more empathic representations of others in a Rorschach protocol will, on the whole, be more varied in content, more objectively described, and more likely to express warmth, interest, pleasure, amusement at the doings of others, but in a way that makes it clear that the perceiver is talking about a distinctly separate person.

Probably one can apply the same test of empathic potential to any other of a person's human representations on projective tests. When giving the TAT, for example, I now regularly ask each subject, after he has told me a set of stories, to go back over them and tell me his impressions of each of the characters he has created, what sorts of people they are, how they strike him. The tone and content of his descriptions of others not infrequently reveal more than do the stories themselves of how he characteristically experiences others and relates himself to them.

It has, of course, long been known that the *number* of human movement responses in a protocol may be an index of the subject's capacity to form empathic interpersonal relationships. Kelly and Fiske (1951) in their attempt to predict good and poor clinical psychology train-

ees found that *M* per cent had more predictive value than most of the variables studied. King (1954) showed that the number of *M* responses in a record is positively associated with the degree to which a patient defines his neurotic problem in terms of disturbed interpersonal relationships. Frankel (1953) showed that the adequacy of social work students in forming good working relationships was positively correlated with the number of *M* responses they gave. In Anne Roe's study of creative scientists (1953), the social scientists gave more *M* responses than the artists, physical scientists or biological scientists. However, one should be careful to evaluate empathic potential not only by the number of *M*'s in a Rorschach record, but by their quality. For one thing, many *M* responses may not signify a corresponding capacity for actualizing mature relationships with others; the person may be quite inhibited in his actual relationships, and carry on much of his social intercourse on the private stage of fantasy where he is protected from the potentially painful vicissitudes of real interpersonal engagements. In such cases, the number of *M*'s may be a measure only of the extent of fantasy involvement with others. *M*'s should be associated with other indications of responsiveness and warmth before they may be taken as an unambiguous expression of the capacity for ready mutuality and rapport.

Other Dimensions of Rorschach Content Analysis

Though concerned ostensibly only with object-representations, the preceding discussion does, in fact, deal with self-representation as well, for self and other are reciprocal terms, each defined by the relationship which binds the two together. It would take us too far afield from the validation study I want to report to discuss in more than this tangential way the *self*-representational content of Rorschach responses. A fuller discussion of the meanings which may be inferred from a Rorschach subject's tension-state representations and their relations to his sense of identity is developed upon else-

where (Mayman, 1959), and was included in the training of the Rorschach judges in the study reported below. I shall also defer any discussion of thematic representations in Rorschach content, although these, too, figured significantly in the following study.

A Clinical Research Application

A predictive study was undertaken to test the validity of inferences drawn from self-representations and other-representations in Rorschach responses. If we assume that the glimpse such Rorschach data give us of a person's subjective world is accurate, and if we can assume, too, some correspondence between pathology at this subjective level and pathology of a more overt kind, then the level of disturbance evident in Rorschach object-representations should correlate with more objective measures of psychopathology. A number of such measures were available on a group of patients who were studied intensively in The Menninger Foundation's Psychotherapy Research Project (Wallerstein, Robbins, Sargent, & Luborsky, 1956). These patients had all been evaluated carefully and rated on a specially designed Health-Sickness Rating Scale (Luborsky, 1962), as well as on a wide variety of patient variables. An attempt was made to see to what extent ratings of psychopathology based exclusively upon self- and object-representations on the Rorschach test given before the beginning of treatment corresponded with these clinical ratings of psychopathology.

A number of Rorschachs was selected—14 for the pilot study and nine more, for a total of 23 for the replication study—chosen randomly from the total group of 42, except that an attempt was made to have the entire range of psychopathology spanned by this group of patients represented in the Rorschach studies.

For the pilot study, five advanced graduate students at the University of Colorado, all of them enrolled in an advanced Rorschach seminar, independently rated each of 14 abridged Rorschach protocols, and a consensus mean rating for each patient was computed. The protocols

were limited exclusively to those verbatim words and phrases from which self- and object-representations could conceivably be inferred. References to color, shading, location; in short, any suggestive cues other than the representational content were deleted, and only response-fragments were shown the raters. To some extent, these content-fragments were clustered loosely according to content or theme categories: human responses; tension-state representations; oral-aggressive imagery; etc. Each protocol was rated for degree of psychopathology on the Luborsky Health-Sickness Rating Scale. Clinical ratings of these subjects ranged from 28 to 60 (the Scale scores may range from 0 to 100).

In the replication study, essentially the same procedure was followed. Twenty-three excerpted Rorschach content protocols were rated by a new seminar group consisting of three pre-doctoral interns from Topeka State Hospital and three post-doctoral Fellows from The Menninger Foundation.

In the pilot study, four of the five judges came up with ratings which correlated from .51 to .65 with the criterion ratings, all significant at the $p < .05$ level of confidence. The group's consensus Rorschach Health-Sickness rating correlated .81 with the criterion, significant at the $p < .001$ level of confidence.

In the replication study, the consensus Rorschach ratings correlated .86 with the criterion. Moreover, every one of the raters did almost as well on his own; the correlations with psychiatric ratings ranged from .68 to .87, all significant at better than the $p < .001$ level of confidence.⁴ Inter-rater reliability ranged from .67 to .90 around a median reliability coefficient of .78.

Of the 12 patient variables studied in

⁴ I am grateful to Miss Lolafaye Coyne and The Menninger Foundation Psychotherapy Research Project for the statistical analyses reported in this paper. I would also like to take this opportunity to express my appreciation and gratitude to the students and post-doctoral Fellows who made this study possible: Drs. Colson, Lependorf, and Taylor; Miss Clark, Miss Wanderind, and Mr. Kissen, Miskinnis, Pomeroy, Shaub, Vancini, and Wood.

Table 1

Correlations of Rorschach Health-Sickness Ratings with Clinical Health-Sickness Ratings

(N = 23)

Rater	Intercorrelations						Clinical Rating
	Pre-doctoral			Post-doctoral			
	1	2	3	4	5	6	
1		.87	.67	.68	.82	.77	.76
2			.84	.77	.90	.87	.80
3				.79	.69	.72	.68
4					.78	.75	.87
5						.84	.83
6							.75
Consensus Rorschach Rating							.86

Table 2

Correlation of Rorschach Health-Sickness Ratings with Clinical Ratings on Twelve Pre-treatment Patient Variables

(N = 21)^a

Patient Variable	Correlation with pre-treatment Rorschach Health-Sickness Rating
Anxiety Level	.16
Severity of Symptoms	-.63*
Self-directed Aggression	-.15
Extent to which Environment Suffers	-.59*
Externalization	-.36
Level of Psychosexual Development	.71**
Patterning of Defenses	.81**
Anxiety Tolerance	.67**
Insight	.37
Ego Strength	.79**
Motivation for Change	.71**
Quality of Interpersonal Relationships	.77**

* Significant at better than the $p < .01$ level of confidence.** Significant at better than the $p < .001$ level of confidence.

^a Patient Variable ratings were not available on two of the 23 cases on whom we had Rorschach ratings. Without these two cases the correlation of Rorschach ratings with pre-treatment clinical ratings would have dropped

from .86 (Table 1) to .71. It is likely that the inclusion of these two cases in the Table 2 computations would have further raised the correlations reported above.

the Psychotherapy Research Project eight were significantly correlated with Rorschach Health-Sickness ratings: Severity of Symptoms, Ego Strength, Quality of Interpersonal Relations, Anxiety Tolerance, Level of Psychosexual Development, Patterning of Defenses, Motivation for Change, and Extent to Which Environment Suffers. Most of the correlations were in the .60's and .70's. By contrast, and as anticipated, only three of 28 "situational" and "treatment" variables yielded significant correlations with Rorschach Health-Sickness ratings.

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Discussion: On Using Experiential Data in Personality Assessment

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If I may begin on a personal note, it is a special pleasure to discuss the work of one of my first clinical teachers, Ernest Schachtel, one of my first clinical colleagues, Martin Mayman, and one of my first clinical students, Joseph Lyons, all presented in one session.

"The role of experiential data in personality assessment" is a brave title for a symposium in these days when clinical psychology is under such heavy attack from the dominant forces of self-styled scientific psychology, which are still very much under the influence of behaviorism. In their chase after the unattainable wild goose of a completely objective science, many of our colleagues even within clinical psychology have pinned whatever hopes they have for the advancement of diagnosis and assessment to an ever more sophisticated use of inventories like the MMPI. But no matter how ingeniously a computer is set to work manipulating the resulting data, they remain a cold and inscrutable behavioral residue, as Dr. Lyons has pointed out, which can tell us nothing directly about the inner experience of another person. That is no handicap, in the view of a behaviorist, for he sees the task of psychology as only the discovery of lawful relationships between external stimuli and behavioral responses.

By contrast, this symposium is a declaration of faith in a highly unfashionable conception of psychology as a science of minds, concerned with behavior mainly as a means of getting to know about and understand the subjective life of human beings. In the long run, I am convinced that psychology will come back to an appreciation of this point of view, though it may take such voices

from the older, harder sciences as Polanyi's to persuade our superobjectivists that they are attempting the impossible as well as the inappropriate. In his brilliant and profound book, *Personal Knowledge*, Polanyi (1958, p. 135) shows how the irrational and passionate pursuit of the notion of purely rational, dispassionate, uncommitted objectivity has invaded all branches of science and has led to confusion and self-deception. "Any process of inquiry unguided by intellectual passion would inevitably spread out into a desert of trivialities," he writes. "Without a scale of interest and plausibility based on a vision of reality, nothing can be discovered that is of value to science; and only our grasp of scientific beauty, responding to the evidence of our senses, can evoke this vision."

There can be no denying that an experiential subject matter is more ambiguous, frustratingly impalpable, and difficult to deal with than the numbers generated by a machine within which a captive organism is responding. The history of psychology has persuaded our majority, with some justification, that the objective behavioral approach has been productive, while the experiential orientation has floundered badly. Surely the structuralists under Titchener's misleadership missed the point completely by trying to *reduce* inner experience to atoms of sensation and to rule meaning outside psychology's realm. Nor do I find the contemporary rhapsodies of many existentially intoxicated psychologists much more promising, with their disdain for scientific method. It is rare to find good research training and rigorous theoretical thinking combined with a respect for and a positive interest in

the unique experiential subject matter of psychology. Hence, the unusualness of this session.

Before I saw the papers, I wondered how they would approach the topic, for it seems to open out in two different directions. One leads toward the varieties of inner experience as a *goal* of personality assessment, the other, toward the use of experiential data as a *means* of assessment. Since the papers you have heard have mostly concentrated on the latter, let me sketch quickly what I have in mind by the former. Put in commonsense terms, in order to understand another person we have to get some notion of what his inner world is like—we are interested in his way of seeing life for its own sake, not as a means to anything except understanding him. Indeed, it could even be maintained that an empathic sharing, an imaginative penetration into the inner life of another person is at the heart of what we *mean* when we speak of understanding him, far more so than the ability to predict his behavior. In an intimate relationship, two people seek to share experience; in many of the arts, but particularly literature and the drama, our enjoyment hinges on the ability of the artist to communicate to us something of his unique vision, of his own private experience. The gifted psychotherapist Hellmuth Kaiser even based a theory of neurosis on the universal human longing to transcend the limitations of solipsistic confinement, to bridge the gap that separates the phenomenal universes generated around each of us.

By such sensitive use of psychological tests as that of our symposiasts, it is possible to find a window on the world as it appears from behind the other person's eye. Therapy gives one kind of opportunity to look through the window, diagnostic testing a different and equally valuable one. It is one of the chief gratifications to be gotten from psychodiagnosis, a unique source of personal enrichment.

Let me turn from this metaphoric appreciation and say more concretely what I meant by an experientially conceived

goal of personality assessment. Consider individual differences in the *capacity to experience*. This breaks down into a number of important questions to ask as we seek to characterize a person: how fully can he use his senses? How deeply can he feel his emotions? How far is he able to introspect and become aware of such embedded, unarticulated experiences as somesthesia, imagery of all kinds, entoptic phenomena, hunches and intuitions? How psychologically minded is he, in the sense of being attuned to the nuances of interpersonal relationships, the motivations and emotions of others? This is the realm partly conceptualized by Jung (introversion of feeling, sensation, thinking and intuition), by Murray (intracception and endocathexis), by Witkin (psychological differentiation or field-independence), by Frenkel-Brunswick (tolerance for ambiguity), by Klein (tolerance for unrealistic experiences, and other elements of cognitive style), and by others. But these concepts and the associated techniques of measurement have only begun to scratch the surface; we need much more systematic exploration and taxonomy of the inner world's significant dimensions. One promising approach to assessment of this kind should be mentioned: Levine and Spivack's *Rorschach Index of Repressive Style* (1964).

These have been neglected issues until fairly recently, and psychology has suffered because of it. The literature is bedeviled with unnecessary controversies and confusions because of failure to distinguish, for example, between hallucination and imagery, between fantasies and TAT stories, between tension and unpleasant affect.

The experiential approach as a *means* of psychodiagnosis is, to be sure, not a new way of working with the Rorschach: experts as different as Klopfer and Schafer have expounded it. An example that has particularly impressed me is the work of Margaret Thaler Singer, who has used the Rorschach so brilliantly to understand the modes of experiencing in two types of schizophrenia: the vague, cloudy, purposeless world

of some simple schizophrenics who have little contact with an articulated structure either of visual form or of causal connectedness; and the very differently mixed up, fragmented world of certain acute schizophrenics, whose thought disorder more closely resembles the classical Freudian conception of the primary process.

In my own work with the Rorschach, I have come gradually to have the hunch that a person's inner experience of his own primary process thinking may be the critical parametric variable for which we must find measures—or at least clues—if we are to make maximal use of a system for scoring and quantifying manifestations of the primary process. Is it ego-alien or ego-syntonic, accompanied by unpleasant or by pleasant affect?—these are first-approximation issues, insufficient in themselves but difficult enough to find out about. Adopting a suggestion of a colleague, Fred Pine, I have introduced what I call an *affect inquiry*—a request that the subject tell not only where he saw each response and what about the blot made it look like that, but how he felt about it at the time, whether seeing it was pleasant, unpleasant, or indifferent. This type of inquiry has opened up new realms of data about the emotional experience accompanying the response, and about its personal relevance and meaning of which Dr. Mayman speaks, which is often of considerable clinical value and makes the rest of the protocol much more meaningful.

I agree, therefore, with Dr. Schachtel that the usually unscored parts of the Rorschach can tell us a great deal about the experiential world of the subject. I had the good luck to be exposed to his sensitive application of a phenomenological approach to an understanding of all aspects of the test very early in my study of the Rorschach, and the new fruits of his approach, which he has shared with us today, appeal to me as much as the familiar ones. His handling of the disputed matter of mother-and-father-cards is judicious and sensible and I look forward to studying in full

detail what he has to say in his new book about the various other "perceptual themes inherent in the structure of some of the blots," and their experiential significance. The phenomena of identification and the participation of the body image in the perception of the blots, which he and Dr. Mayman both discuss, remain a challenge to perceptual theory that has never been adequately dealt with, to my knowledge.

Dr. Schachtel began with the proposition that the Rorschach provides us with experiential data, but Dr. Lyons cautions that it ain't necessarily so—not always. That's the kind of data we want, Dr. Lyons says, but sometimes the patient gives us misleading, phony responses that do not communicate authentic experience. His principal point, as I get it, is the valid one that it is not enough merely to have an experiential approach in assessment: we must also look carefully at our data and not confuse valid, spontaneous expressions of a person's inner experience with more studied productions in which the subject is for one reason or another deliberately guiding his own processes of responding to test materials so as to control the resulting data. Assessors of personality certainly do encounter problems of dissimulation, conscious censoring of responses, "faking good" or bad, and defensively exaggerated self-consciousness.

Yet Dr. Lyons tries in this paper to go further and to make some epistemological points, where I believe he gets into difficulties. He makes several dichotomous distinctions and tries to assimilate them one to another, beyond the point where I can follow him. One distinction is between the kinds of responses the examiner wants and the kind he doesn't; at this point I was reminded of Roy Schafer's brilliant description of the kind of responses the Rorschach tester tends to hope for—the ones that are brief enough to be easily recorded, unambiguously segregated one from another, typical enough to be easily scored, adequate in number but not too plentiful, and so on. The desired responses start to sound like the very sort of textbook

examples that are most easily handled in a routine fashion and which may be interpreted right out of the book also, making no demand on us that we try to feel our way through them to the unique experiential world of the subject! Dr. Lyons's ideal subject sounds different, to be sure: "he is spontaneously caught up in the experience," and so forth; as he described this accommodating fellow, I found myself recalling Rapaport's conception of someone with little autonomy from his environment, and Mayman's description of the pseudoemphatic narcissist. To be sure, it is often interesting to test such people; but the data given by someone with a high degree of autonomy from his environment are also valid and usable. I agree that the latter person is more likely to experience the reflective awareness of the observing ego; that is characteristic of good ego autonomy, the secondary process, and an adequate control of what Dr. Schachtel elsewhere calls focal attention. I don't see the value of calling what is produced by a person operating at this level "meta data," however, nor does the malingerer strike me as the best example of a person who is reflectively aware of his own experience.

The difficulty with Lyons's position becomes more apparent when he assimilates yet another distinction to his, Meehl's contrast between what a man says and what he is. I am of course entirely with him in his orientation to the second of these two. *What a man says* is clearly data, and it is typically the main body of data the psychodiagnostician has, necessarily supplemented by his empathic perception of the subject's feelings and his observation of nonverbal communications and expressive behavior. But *what a man is*—that's what we want to find out; that's a matter of inference, not data. It simply does not follow logically, as Dr. Lyons claims, that to distinguish what a man is from what he says is to agree that there may be two types of data. To be sure, some people are better self-reporters than others, but I very much doubt that naive people innocent of self-observing

reflexive awareness are the best reporters of their own behavior. At least, Dr. Lyons adduces no evidence to back up this claim.

Similarly with the case of "unconscious material": inferences about what a man unconsciously is can be made from many different types of data or material, including the productions of malingerers; the data themselves are not unconscious, nor is there any special class of data about which it may be said that *they* are in a concentrated way unconsciously determined, "not conscious," with the possible exception of dreams. As originally experienced, dreams typically lack reflective awareness, though when they are reported and become data they may be self-consciously censored or elaborated, like any other verbal communication. It is difficult to resist the conclusion that Dr. Lyons wishes that the tester could bypass the subject's defenses and get "the real stuff," undistorted by any defensive operation. In this understandable longing for fewer complications in a difficult clinical job, we should listen to the echoes of a similar wish from the days of id-psychology: "If only we could bypass defenses and resistance by means of hypnosis, drugs, or some other special technique, we could find out what was really bothering our clients and speed up therapy." The fallacy, of course, was that the necessary focus of treatment was the very defenses that produced resistance and caused most of the subject's problems in living.

Dr. Lyons was kind enough to furnish me the anonymous Roemer protocol he alludes to; the following remarks were written before I learned the subject's identity. It contains self-conscious statements like "I don't want to seem to be overdoing it," as well as direct interpretations of the blots during which the subject seems to be thinking only about what he sees, not how he's doing. I don't want to carp any longer about the question of what is meant by data; but this clinical material brings us back to the focus of the symposium. Without going very deeply into interpre-

tation, I would note that such remarks as the one mentioned show a capacity to reflect upon experience, to take one step back from it and thus to master it rather than being overwhelmed by it. Again, it is the issue of autonomy; I score such remarks in my primary process system as adaptive use of introspection as a control. They characterize intellectually self-aware people, who may not necessarily have a great deal of affective self-awareness, but who have considerable capacity to delay impulse and to tolerate anxiety.

Let us consider the first response: "I saw it right away as two deformed dwarfs who bow to each other, face to face, and who insult each other." Notice how the very first remark betrays through its use of the past tense ("I saw it . . .") that the observing ego is reporting, very much in control, not taking any risks of too much self-revelation by blurting something out without inspecting it first. Yet I cannot suppress the impulse to go on and look for a symbolic reference in the response to an unconscious level of communication about the situation in which a subject who is apparently a psychologist himself is being tested by his counterpart: both persons he sees are being superficially polite to one another but are insulting each other, too; moreover, both are deformed and undersized. Despite his defensive controls, he produces data from which many kinds of inferences can be drawn—including inferences about the world of his experience, both conscious (a self-controlled, ambivalent interest, a type of perception dominated by sharply delineated, definitive forms, albeit enlivened with movement of the kind that Dr. Mayman calls *fabulized*) and also unconscious (the feeling of being bodily distorted, the concealed hostile competitiveness under a surface of conventional compliance).

To summarize my objection to the way Dr. Lyons has put his point: if we adopt the interpretive stance that characterizes the work of Drs. Schachtel and Mayman, and use test data as a means by which to penetrate imaginatively into the subjective life of another

person, then we do not distinguish between good and bad data, or (as Murray once put it) between wheat and chaff—nourishing grain that tells us directly about the direct experience of the subject's real self, and illusory chaff. Rather, we accept all data as being a challenge to our empathetic and interpretive skills, expecting every subject to respond in his own way and to tax our creative resources. Yet of course we will be intensely interested in his ability to reflect on his own responding, either spontaneously or on demand in the inquiry, and we will draw important diagnostic inferences from the way and the degree to which he does so.

Dr. Mayman has concentrated on the ways a person experiences himself and his objects as shown in Rorschach responses, going rather extensively into the fascinating theoretical issues of empathy and identification. I wish there were time to discuss his views in depth and bring them into relation with those in the other two papers and my own, which differ slightly, but that would be a long undertaking. Briefly, I would contrast empathy of the mature kind Schaffer calls *generative* not with identification but with emotional contagion as its more primitive predecessor; as I see it, identification refers to a class of mechanisms (some more crude, some more differentiated) that are involved in empathy and indeed in any effective communication or relatedness to another person.

The conception that in responding to the Rorschach blots a person draws on his personal stock of imagery has been expounded most cogently by Schaffer in his book of a dozen years ago; in making use of it, Dr. Mayman may have given the impression that he was speaking about the sort of conscious visual representation that Pious's patient was dependent on. In some as yet unpublished data, I found the ability to give Rorschach responses of all the conventional types to be statistically unrelated to the carefully assessed capacity to visualize and to the spontaneous experience of various other types of imagery. Many other lines of evidence lead to

the conclusion that we must postulate non-conscious images (preconscious and unconscious ones, if you like) as a normal feature of cognition, and that a person can draw upon them in giving Rorschach responses even though he is quite unable to see things in his mind's eye. This general human capacity can be put out of commission by brain damage, and then we encounter such symptoms as the inability to recognize faces and to draw, as well as the inability to interpret inkblots.

I agree very much with Dr. Mayman's statement that the images that people a person's Rorschach are not necessarily the ones that predominate in his stream of consciousness, though some of the things he said near the beginning of his paper made it sound as if he was not quite aware of the dangers of inferring directly from the nature of test responses to the nature of the subject's private world. It is a complex process indeed that determines just what images appear in the protocol, in which the nature of the blots play a major role that should not be forgotten. Dr. Mayman implicitly recognizes this fact in his distinction between empathetic and fabulized M responses.

I have always been a bit mystified by the great importance other psychologists attribute to M responses. Ever since I began trying to do research with the Rorschach, I have found it increasingly difficult to make any consistent sense out of this elusive score. Perhaps Dr. Mayman has found a way to break the category down into more internally consistent subtypes, which should not be added together, and which at last will prove more meaningful. But since the average incidence of M in most normative studies seems to be low, if we start subdividing we shall be left with entirely too precarious a numerical base for important generalizations about people. Moreover, so many influences can knock out M besides the lack of empathy—for example, inhibition and constriction—that it is hazardous to interpret its absence. I should think that it would be worth while, at least for research purposes, to try out Mayman's

distinctions with the Barron M-threshold blots.

The validation study with which Dr. Mayman attempted to put his conceptions to the test is an impressive tribute to his capacity to teach a difficult and subtle type of clinical judgment, as well as to the general validity of his formulations. In a way, I am as much impressed by the consistency with which his students could apply his conceptions to concrete data as I am by the validity coefficients themselves. It looks very much as if one big general factor would emerge if all of the Rorschach ratings and criterion ratings of the twelve specific variables and of Health-Sickness were intercorrelated and factored. Note that the students made direct predictions of the Health-Sickness ratings; they did not score various types of M, or try to make separate predictive ratings for the dozen diagnostic variables. But I must say that I am envious of all those fine fat correlation coefficients! The results of an attempt by one of my students (Rabkin, 1967) to predict the same Health-Sickness criterion from the same Rorschachs using various of my primary process scores have been rather disheartening. She used the entire sample, but the predicted results rarely came near significance. So I don't feel in a very sound position to criticize Dr. Mayman's ideas and procedures, when they pass the acid test of confrontation with real data much better than mine do!

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A Normative Rorschach Study of Athenians

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Summary: The Rorschach Test was given to 200 Athenian adults. The sample was representative of the greater Athens, Greece area according to known proportions of sex, age, education and income. Productivity, location, human movement, color, $F\%$, $F+\%$, content, cards rejected, and popular responses were reported. Except for greater productivity in females, no other sex differences were found. Age, education or income were not sources of Rorschach variation. Experience balance was introversive. Similarities and differences between American and Greek Rorschachs were discussed.

The Rorschach practitioner who works with psychologically disturbed clients must differentiate between pathological and non-pathological processes in the Rorschach. Usually clinical experience is relied upon, together with norms derived from clinical samples. The picture of "normal" functioning in the Rorschach is often an abstract concept, based upon models rather than empirical evidence of normal functioning.

Beck¹ (1961; Beck, Rabin, Thiesen, Molish, and Thetford, 1950) has stressed the need for development of norms based upon statistical frequency for many Rorschach variables, including Form good and poor. He has also stressed that norms must be obtained from normal as well as clinical groups. Bohm (1958) states that "statistical frequency actually follows the classificatory principles set-up by Rorschach on the basis of internal evidence. For that reason, frequency statistics can be drawn upon as an indirect line of evidence when a decision has to be made in practice."

Ames and her co-workers (Ames, Learned, Metraux, and Walker, 1952) have published norms for various ages of normal children. Hertz (1946) has published norms. Many other Rorschach workers have stressed the need for statistical norms to form a basis for and

supplement to the clinician's judgment and clinical acumen.

In Greece, standardization of psychological tests started recently and has yet to achieve an adequate level (Vassiliou, 1966). Our clinical experience has raised many uncertainties when called upon to assess whether or not the Rorschach picture of Greek patients represents pathological functioning. Norms developed in other cultures, when used to describe Greeks, may be misleading. Although cross-cultural studies have indicated many Rorschach characteristics to be pan-cultural (Hallowell, 1956; Lindzey, 1961), they have also shown that certain characteristics may be unique to a culture.

A serious criticism of norms derived in various cultures is that they may not be representative of the various population distributions within the culture. College students, housewives, institutionalized patients, private patients, volunteers, and testers' relatives, in various combinations, have constituted normative samples.

The gathering of representative norms is important for another reason. The usual approach when establishing Rorschach norms is to define a "normal" sample and then compare this sample with a pathological group or groups. But once the normal sample has been gathered and analyzed, its variations are too often taken for granted. The variations found in the normal sample blend

1 We are deeply indebted to Dr. Samuel Beck for his encouragement and advice.

into the vague stereotype of "ideal" or "normal" Rorschach functioning. We then concentrate on the variability of the pathological sample. But in doing so we in fact concentrate on the variability of perhaps 10 per cent of the population while we take for granted that the remainder, the 90 per cent of the population, does not vary significantly.

In this study we took the general population as a point of reference in investigating psychological phenomena. In deriving Rorschach norms, a sample was selected representative according to known census statistics of the greater Athens area. Note that the subjects are not characterized as "normals" but as representative of the population. We intentionally gathered Rorschach characteristics from a representative sample rather than attempting to define a "normal" sample.

This study reports the findings of some Rorschach variables: *R*, location, human movement, color, *F*%, *F*+%, content, cards rejected and popular responses.

METHOD

The Rorschachs were individually administered by a female research assistant trained specifically for the project and closely supervised throughout.² The standard administration, as described by Beck (1961), was followed.

The 200 subjects were selected from the greater Athens area which represents 23 per cent of Greece's population. The sampling universe were adults, 18 years of age and above, living in private households. Persons sharing quarters and meals were considered to be members of households and distinction was made between permanent members and temporary guests. The detailed description of the modified proba-

bility sampling procedure is described elsewhere (Vassiliou, Georgas, & Vassiliou, in press). In brief, from the directory of all the streets of the Athens metropolitan area, using a table of random numbers, 50 streets were selected. The interviewer selected residential buildings and households on the streets according to detailed instructions which insure that the sampling was not biased. The interviewer then listed all members of the household according to age and gave the Rorschach in the home to the youngest present belonging to the sampling universe. The interviews were conducted from 10 a.m. to 6 p.m. to insure the representation of all ages. Percentages of sex, age, education and income in the greater Athens area have been defined by over 100 public opinion surveys conducted twice a month for the past four years. These proportions have been compared with census statistics and found to be adequate.

Table 1 shows the per cents of sex, age, education and income obtained in this study. The number of males tested was 92, and 108 females were tested.

Table 1

Obtained Per Cents of Sex, Age,
Education and Household Income

Age	Sex x Age		
	Males	Females	Both Sexes
18-34	13.5	22.0	35.5
35-44	12.5	17.0	29.5
45 and above	20.0	15.0	35.0
All groups	46.0	54.0	100.0

Education	Sex x Education		
	Males	Females	Both Sexes
University	6.0	2.5	8.5
High School	10.0	13.0	23.0
Grammar School	19.0	23.0	42.0
Illiterate	11.0	15.5	26.5
All groups	46.0	54.0	100.0

Household Income		
More than 3000 Drachs/mon.		60.0
Less than 3000 Drachs/mon.		40.0
Total		100.0

² The authors would like to thank Mrs. Harris Katakis whose skill, sensitivity and perseverance were invaluable in the collection of the 200 records. The following research assistants provided valuable help during various phases of the data analysis: K. Kaliambetsou, V. Kamba, L. Karatsioli, M. Seferis, and C. Zanni.

RESULTS

The Beck scoring system was used, and our data were primarily compared with his results (Beck et al., 1950; Beck, 1961).

Table 2 presents the mean number of Whole, Detail and Rare-Detail responses card by card. The per cent of locations

that Card VI was rejected by fully one out of every five persons. Cards IV, VI, VII and IX were rejected by approximately one out of 10 Ss. Cards I, II, III, V, VIII, and X on the other hand were rarely rejected. Analysis of variance showed that sex, age, or education were not sources of variation.

Table 4 shows the per cent of content separated into Beck's classification of categories. The animal and animal

Table 2

Mean Number of *W*, *D* and *Dd* Responses per Card

Card	<i>W</i>	<i>D</i>	<i>Dd</i>
I	1.23	.39	.17
II	.30	1.15	.12
III	.01	1.77	.13
IV	.92	.47	.13
V	1.05	.08	.13
VI	.41	.63	.18
VII	.49	.74	.20
VIII	.10	1.75	.16
IX	.25	1.12	.29
X	.28	2.13	.15
Total	4.97	10.23	1.66
Per cent	29.4	60.7	9.8

Table 4

Per Cent of Content Categories Responses

Content Category	Per Cent
human	11.82
human detail	1.99
animal	45.52
animal detail	3.32
anatomy	9.31
abstraction	0.23
antiquity	0.34
architecture	0.94
art	1.25
anthropology	0.03
astronomy	0.06
botany	5.27
blood	0.40
clothing	0.44
clouds	0.94
explosion	0.03
fire	1.11
food	0.20
geography	1.82
household	1.86
implement	0.41
landscape	6.20
mask	0.04
music	0.20
mythology	1.56
nature	0.40
personal	1.00
recreation	0.23
religion	0.89
rural	0.12
science	0.23
sex	0.83
sickness	0.32
travel	0.58
vocation	0.26
Total	100.00

Table 3

Per Cent of Subjects Rejecting Each Card

Card	Per Cent
I	0.5
II	5.0
III	2.0
IV	10.0
V	2.0
VI	20.5
VII	10.0
VIII	1.0
IX	10.5
X	6.5

for the total Rorschach indicates 29.4 per cent Whole, 60.7 per cent Detail, and 9 per cent Rare-Detail responses. The effects of sex, age and education upon *W*, *D*, and *Dd* were tested separately through one-way analysis of variance. No *F* tests were significant.

The per cent of rejects in the sample, card by card, is shown in Table 3. Note

detail categories account for 49% of the responses. This percentage is comparable, or possibly slightly higher, than that found in American studies. The human and human detail categories account for 14% of the responses, which is consistent with Beck's finding. Anatomy responses are the third most frequent category amounting to 9%.

The mean number of responses for the total group is 16.7. The mean number of responses for males is 15.6 and for females 17.7. This higher productivity in women is statistically significant at the .05 level of confidence ($z = 2.01$). Analysis of variance indicated that education and age were not significant sources of variation.

F is defined according to Beck (Beck et al., 1950) (animal movement or inanimate movement was included in F). The average F is 80% with a standard deviation of 12.9. Sex, age, or education were not sources of variation in F .

$F+$ was defined in the following manner. The frequencies of responses to each location were tabulated. Those frequencies of associations with similar form were in some cases combined. For example, the frequency of responses of a *cat* and a *lion*, if given to the same location, were combined because their form is similar. If 4 out of 200 S s gave the same response to the same location, that response was classified $F+$. Defining as $F-$ those responses given by three or fewer S s would not be statistically meaningful. For calculation of $F+$ %, non- $F+$ responses are considered potentially $F+$ or $F-$, subsequently receiving a weighted value of one-half an $F+$ response.

Beck (Beck, et al., 1950) defined as $F+$ those new responses given to the same location by at least three out of 57 S s. Responses scored as $F+$ or $F-$ on the basis of previously established norms were scored in the same manner in the Spiegel sample. A few previously established responses were changed to $F+$ or $F-$ on the basis of statistical frequency.

Our unweighted mean $F+$ % is 68. The weighted mean $F+$ % is 84, which is

comparable to Beck, who estimates that the normal adult will obtain an $F+$ % of about 75 to 85 (Beck, 1961). Again sex, education or age were not sources of variation in $F+$. Tables of $F+$ are being prepared in Greek.

Movement and color were analyzed by using non-parametric statistics (Cronbach, 1949). It appears more meaningful whether a subject gives or does not give movement or color, rather than the number of such responses produced. Averaging movement and color responses can result in misleading interpretations of experience balance. Movement and color were separated into three categories: (1) those S s who gave color but not movement, (2) those S s who gave movement but not color and (3) those who gave both movement and color. We believe this gives a more accurate picture of experience balance for this study. A chi-square test was significant at the .001 level of confidence. The proportion of subjects giving movement was higher than those giving both movement and color which was higher than those giving only color. This indicates an introverted experience balance.³ Education or age were not a source of variation in M or C .

Popular responses were defined as those given by at least 14% of the sample. Table 5 presents the 10 Athenian populars: the bat or butterfly on Card I, the two dogs on Card II, two people on Card III, bat or butterfly on Card V, the animal skin or rug on Card VI, the two humans on Card VII, the animals or mice on Card VIII, the tree on Card VIII, the human head on Card IX and the crab on Card X.

3 It is interesting to note that when the experience balance is computed using the number of M s and C s per record, sex differences do appear. Experience balance computed according to Beck's definition resulted in an EB of 1.33: 1.03. A critical ratio test was significant at the .05 level ($z = 1.96$). Separate male and female experience balances were 1.45: .91 and 1.22: 1.14 respectively. The male EB was significant at the .01 level ($z = 2.70$). The female EB was not significant. That is, when M is given, men tend to produce more M 's per record than women. On the other hand, when color is given, women tend to give more color per record than men.

Table 5
Popular Responses

Card	Location	Content	Per Cent
I	<i>W</i>	bat, butterfly	37.5 19.0
II	Lateral <i>D</i> 's	dogs	14.5
III	<i>D</i>	2 people	71.5
V	<i>W</i>	bat, butterfly	57.5 19.0
VI	<i>W</i> or <i>D</i>	animal skin or rug	39.5
VII	Upper <i>D</i> 's	human heads or faces	22.5 22.0
VIII	Lateral <i>D</i> 's	animals mice	20.5 17.0
IX	Upper <i>D</i> Lower lateral <i>D</i>	tree human head	19.0
X	Outer <i>D</i>	crab	17.0

DISCUSSION

In attempting to interpret these data from the representative sample, one must realize that an individual record is not being interpreted, but an abstraction. This is an abstraction of the functioning majority of the population. We are attempting to delineate and understand the prevalent intrapsychic and interpersonal processes of this abstraction, with the realization that we are describing modal characteristics and that variations exist. If a significant proportion of rejections is found in a normative sample, this can be partially interpreted using Rorschach theory. But the interpretation of a rejection in an individual record is on a firmer basis than rejections in a normative sample. In an individual record, the rejection is interpreted in terms of the interaction with other variables in the record, from other personality techniques, and also within the context of a personality theory. In interpreting normative data, one deals with fragmented variables, whose interrelationships are obscured and whose sequences are lost.

Insights from the Rorschach can become more meaningful when amplified by data from other sources, taking into account more than psychological vari-

ables. We have used data from public opinion research, social-psychological research, and other clinical research. The interpretation of these data aims at the understanding of prevalent intrapsychic processes and modes of interpersonal relationships that characterize the culture.

Locations

The per cent of responses to locations in the Athenian sample revealed almost 30% Whole responses, 61% Detail responses, and 9% Rare-Detail responses. Beck (Beck et al., 1950) found 19% Whole, 72% Detail and 9% Rare-Detail responses. The Greek locations suggest a greater emphasis on the global approach. The Whole responses were predominantly simple Wholes rather than integrated Wholes. This suggests that although the Greek uses a more global approach it is at the expense of precise analytical thinking.

Rejects

It is significant to note that one out of five Ss in our sample rejected Card VI and that one out of 10 Ss rejected IV, VII, and IX. Card VI is commonly interpreted as providing information

about sex. Cards IV and VII are often interpreted in terms of authority and maternal figures, respectively. Card IX is considered to be a difficult card. The most parsimonious explanation for this high proportion of rejects is blocking.

Comments: Concerning card IV it is interesting to note that other studies have shown that the Greek clashes automatically with authority (Vassiliou, in Press). The Greek's difficulty with authority has taken the shape of anti-authoritarian attitudes. The Greek complies on the surface to authority if he cannot do otherwise, but whenever possible he will attempt to defy, deceive or passively resist (Triandis and Vassiliou, 1966).

Card VII: In the Greek culture the parent-child and more specifically the mother-child role is central while the husband-wife role is secondary (Vassiliou, in Press). The Greek mother seems to be the hub of the family. Data from stereotypes indicate (Vassiliou, 1966) that mother's role in the family is highly idealized and positive. Role perception and child rearing studies emphasize the mother's role as extreme in nurturance. According to a cross-cultural study using the semantic differential, *mother* in Greece is evaluated as very good and is also seen as extremely active. The Greek loadings are extremely high in comparison to other cultures. On the other hand the same study revealed that the concept *woman* is less loaded on evaluation, potency and activity. The stereotype of the woman, in other studies, (Vassiliou, 1966) was found to be negative. Both men and women shared the same negative stereotype of woman.

The man-to-woman roles, as reflected by the role differential (Triandis et al., 1967) indicate that men are expected to demand subordination while women are not supposed to compete or be impatient with the male. On the other hand, women are seen as giving affect but also as cheating the male while fearing him.

These findings suggest that the mother plays a highly intense and involved role in the family. They also suggest ambivalent feelings toward the female.

Card VI: Marriage in Greece traditionally has been arranged by the family. The dowry has been an important element in arranged marriages. Therefore marriage is more likely to be based on economic considerations. The ensuing relationship between husband and wife is likely to be considered a contract in which profound emotional attachments may not develop.

Stereotypes and images concerning *happy marriage* have shown that the ideal marriage is one of compromise and mutual concessions. Therefore sex is likely to be viewed more as a means of reproduction or drive-reduction and less as an emotional relationship (Vassiliou, 1966).

Sex is treated as taboo by the Greek mother. 73% of Athenians never dared ask their father and 65% their mother any information about sex. Half of those who dared asked their parents report having been punished or misguided. When the same respondents were asked who should give sexual education to their own children, they indicated *others* rather than themselves (Vassiliou, 1966).

Card IX: This is a difficult card to organize. The rejects in this card are consistent with the emphasis upon simple wholes. They could suggest a readiness to give up when confronted with difficult tasks. In investigating the stereotype of the Greek, the Athenian admits to having poor work habits (Triandis and Vassiliou, 1966).

Content

The proportions of content categories are remarkably consistent with Beck's findings. The variety of animals reported are similar to those given by Americans. Perhaps the Athenians tended to give more sea animals than Americans, and they were more specific in identifying the exact species. A few percepts were unique to the Greek culture but the form was similar to that given by Americans. For example, on Card I, *two-headed eagle* was frequently given. The two-headed eagle was the symbol of the Byzantine Empire and represents

a symbol deeply rooted in modern Greek culture and folklore. Anatomy responses were the third most frequently given percept, after animal and human responses. The relatively low proportion of *blood* responses in the sample suggests that the presence of *blood* responses, except on Card II, may be a pathognomic sign. One may have expected a relatively high proportion of *antiquity* and *anthropology* responses from Athenian subjects. The per cent of *religion* responses was greater than these two categories combined. Apparently the little church of St. George on Lycabettus hill overshadows the Acropolis in the Athenian mind.

Number of Responses

The mean *R* of women was higher than that of men indicating higher productivity in women. This higher productivity in females is close to the stereotype of the Athenian woman who is assigned a role obliging her to become inventive in all aspects of everyday life in order to make ends meet. Strong social demands are placed on her resourcefulness and activity (Vassiliou, 1966).

It is of interest to note that a study of anxiety using a Greek adaptation of Taylor's MAS showed women to give consistently higher manifest anxiety scores than males at all age levels and all education levels (Vassiliou et al., in press).

In a study using the semantic differential the concepts *mother* and *woman* were found to be much higher in activity than *father* or *man*. *Father* and *man* were higher than *woman* in potency.

Experience Balance

The greater number of Ss giving movement over color responses suggested an introversive experience balance.

It is of interest to note that an introversive experience balance seems to contradict the stereotype of the expansive, extraverted Mediterranean type. This suggests that Athenians tend to internalize, to respond according to inner

values rather than spontaneously respond with affect. How does this account for the expressiveness, impulsivity and demonstrativeness which characterize the Greek's behavior? Do these characteristics necessarily mean expression of affect? Could it be that the apparently spontaneous expression of emotion represents actually a culturally induced role performance pertaining only to the cognitive component of emotion without its affective component?

Populars

The bat or butterfly on Card V was the most frequently given popular response. The two human figures on Card III were the second most frequently given populars. It is interesting to note that the 10 populars found in the Athenian sample are identical with 10 of Beck's 20 popular responses.

It is significant to note that except for the sex difference in productivity, sex, age, and education were not significant sources of variation in the Rorschach variables. This suggests that the personality variables assessed by these Rorschach measures are quite independent of sex, or changes in age, or educational opportunities. These findings are in contrast to studies in manifest anxiety, (Vassiliou et al., in press) which indicate that sex and education are sources of variation. Most probably the Rorschach technique is less likely to be effected by these variables because it assesses deeper and more stable levels of personality structure.

Although we have focused on those Rorschach variables characteristic of the Athenian culture, the total impression emphasizes the similarities between Greek and American Rorschachs. In the authors' experience, cross-cultural research has often emphasized contrasts between Greeks and Americans (Triandis et al., 1967). The same proportions of content categories, the same *F+*%, the same popular responses, and the qualitative impressions of the authors, support the conclusion that the Rorschach focuses on those elements of

personality hared by humans across cultures.

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The Mayman Form-Level Scoring Method: Scorer Reliability and Correlates of Form Level¹

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Summary: A method of scoring the form level of Rorschach responses developed by Mayman (1962) was employed in a study of 100 twins and 95 of their parents. A method of training is described that led to generally adequate inter-scorer reliabilities. The relationship of mean form level to age, sex, and intellectual abilities is discussed, as are results relevant to the "heritability" of mean form level. It is concluded that mean form level is of complex determination and should be interpreted cautiously in developmental studies. It is argued that Mayman's highly differentiated approach to form level has unique value for qualitative analyses of Rorschach protocols.

Mayman (1962) has developed a method of scoring the form level of Rorschach responses in terms of seven categories of reality-appropriateness. These categories range from reality-adherence at the one extreme to reality-abrogation at the opposite extreme. In the former case, the subject is described by Mayman as maintaining "an objective, realistic, appropriately critical attitude toward a given response; he adheres closely to the determining influence of the blots and maximizes the fit between the associated idea and the blot outline." At the other extreme, the subject who abrogates reality will allow an idea "to emerge and become more compelling than the objective reality; an idea may capture one's fancy and weaken his hold on reality, leading him even to ignore indications which contradict that idea. At such times, the perceiver seems to be immersed in his associative processes and disregards, or chooses to by-

pass, the tacit social obligation to test the appropriateness of his responses and gear himself to see and report only what the Rorschach examiner can also see and share with him."

Mayman has defined the following distinctive scoring categories to represent the reality-adherence of Rorschach responses: The *F+* score is reserved for those responses which represent the most successful combination of reality-adherence and imagination. *Fo* is the designation for ordinary or commonplace responses, including, but not restricted to, responses scored as *Populars* by traditional scoring methods. The *Fw* group of responses are "weak" insofar as they indicate a significant shift away from the strict reality-adherence represented in the *Fo* or *F+* percepts. The score *Fw+* is given to those responses which are "cheap" but acceptable in terms of reality-adherence; *Fw-* is used where there is a distinct lapse in reality-adherence, although one, or at most two, blot details are still used appropriately in the response. The *Fv* or "vague" form response differs from the *Fw* response only in the degree of formlessness of the idea being fitted to the blot. Intrinsically shapeless concepts such as "clouds" or "rocks" are used in *Fv* responses. The *Fs* or "spoiled" response is one in which an important oversight or a striking distortion spoils what might otherwise have been an *Fo*

¹ Contribution to a symposium on Measuring Reality Adherence in the Rorschach test at the annual meeting of the American Psychological Association, September 3, 1966. The work described here is supported by the Menninger Foundation, by Research Grant MH-05517, and by a research career program award, K3-MH-21-936, to the second author from the National Institutes of Health, United States Public Health Service. The authors are indebted to Dr. Martin Mayman for his assistance in training the scorers, to Robert A. Schoen for his contribution to the scoring, and to Lolafaye Coyne for the statistical analyses reported here.

or *F+* response. Finally, an *F-* score is given to arbitrary responses in which the blot outlines exert little or no influence on the response process.

Basic Characteristics of the Sample

The Rorschach test was one of a large number of procedures administered in 1963, the first year of the ongoing Menninger Foundation Study of Twins and Their Parents. At the time the study was initiated, the total sample, which consists of 100 twins aged 8 to 19 and 95 of their parents, comprised about 50 per cent of the same-sex twins aged 8 to 19 in Shawnee County, Kansas. Fifty-four are boys, 46 girls.

The socioeconomic status of the twin families ranges from lower to upper class. It was not possible to obtain a complete stratified sample, since an adequate representation from the lowest socioeconomic levels could not be obtained. However, the range of families along this dimension was diverse, as exemplified by the fact that some fathers were laborers with only a high school education, while others were heads of industries, doctors of medicine, etc.

The 195 Rorschach tests administered in this study were individually given by five examiners who had extensive previous experience in the administration, scoring, and interpretation of the test. Subjects were allowed to give as many responses as they desired. The Rorschach test was usually given at the end of a session of individually-administered laboratory procedures, including measures of apparent movement, autokinesis, and a size estimation procedure.

For purposes of most of the data analyses, including those of the present study of form level, the total sample of 100 twins (50 identical, 50 fraternal) was divided into Twin Sample 1 and Twin Sample 2. One member of each twin pair is in each sample, and these samples are balanced as nearly as possible for birth order (i.e., Twin Sample 1 consists of the twin of birth order 1 in twin-pair 1, the twin of birth order 2 in twin-pair 2, etc.).

Training Procedures for Scoring Form Level

Two advanced graduate students in clinical psychology scored the Rorschach protocols by several methods, including the Mayman method of form-level assessment.

The training procedure for the scoring of form level consisted of the following stages: (1) participation in a one-week seminar conducted by Dr. Mayman during which approximately four hours were devoted to a presentation and discussion of the form-level scoring method; (2) access to an unpublished form-level scoring manual prepared by Mayman in 1962; (3) a period of practice scoring during which the scorers compared their scoring and reconciled differences through discussion of the scoring criteria; and (4) several conferences with Dr. Mayman regarding difficult scoring problems.

Once the major training phase was completed, the scorers were assigned separate protocols to score. From this point on, the scoring was performed independently, although communication between scorers was allowed when special scoring problems arose. Twenty protocols were designated to be scored by both scorers as a reliability check. These records had not been used during the training phase and the scorers were not allowed to communicate regarding any aspects of these protocols.

Description of the Scorer Reliability Test

The twenty Rorschach protocols which were used for the agreement check were selected from the larger twin-parent sample in a manner assuring the broadest possible representation of responses. Ten records were taken from the twin samples and were randomly diversified according to both sex and age. The remaining ten protocols were taken from the parent sample by random selection modified only to assure equal distribution according to sex. The age ranges in years for the twin and parent samples were 9-19 and 28-51 respectively.

Form determinants were classified as

F when form was the sole determinant and as F' when one or more other determinants, such as color or shading, were involved in the response process, even though form remained the primary determinant. Mean form level for individual subjects was computed for both of these classes of response by assigning values from 1-7 to form-level scores of responses ranging from $F-$ at the low end to $F+$ at the high end of the 1-7 scale. There were 405 F responses as compared to only 140 F' responses. Mean form level was also computed for $F+F'$. The tests of scorer agreement consist of Pearson product-moment correlations based on the two scorer's sets of twenty individual mean form level scores for F , F' , and $F+F'$ respectively.

Results of the Inter-scorer Reliability Test

The correlations of the two sets of scores were .88 for Mean Form Level F , .71 for Mean Form Level F' , and .90 for Mean Form Level $F+F'$. All three r 's are significant at the $<.001$ level of probability.

The form-level score for which agreement is most striking is F_0 , on which the scorers agreed 127 out of 137 times (93%). The scorers agreed 41 out of 53 times (77%) on $F+$; 86 out of 117 times (74%) on $Fw+$; 31 out of 66 times (47%) on $Fw-$; 24 out of 32 times (75%) on Fv .

The two categories most difficult to score in the present study were F_s and $F-$. The scorers agreed in 3 instances out of 5 (60%) on F_s scores and in 15 cases out of 35 (43%) on $F-$ scores. Both of these scores occur with low incidence, as would be expected, in the type of sample used in this study.

Although this study has demonstrated that two scorers with adequate training can agree closely on overall form-level assessment with the Mayman method, an additional question remains concerning scorer reliability. Although scorer agreement is high for the most frequently occurring categories ($Fw+$ F_0) and the most clearly defined category

(Fv), it is considerably lower when $Fw-$, F_s , or $F-$ is assigned to a form-weak response. Perhaps the criteria for differentiating these types of response can be explicated for further studies. It would also seem advisable to conduct a further test of scorer agreement using a preselected and assorted pool of responses taken from a wide range of protocols in order to approximate a more equitable distribution of high and low form-level responses.

RESULTS

General Characteristics of Rorschach Response by the Three Samples

In order to obtain the best possible estimates of relationships between overall mean form level and other variables, all S s with one or more card failures were eliminated from each twin sample. This procedure reduced Twin Sample 1 to an N of 45, Twin Sample 2 to an N of 38, and the Parent Sample to an N of 62. In view of the dramatically different relationships between mean form level and other variables for the two twin samples, the fact that 12 of 50 members of Twin Sample 2 failed one or more cards, as contrasted to only 5 of 50 members of Twin Sample 1 is of interest.

Before presenting results concerning correlates of the mean form level score, a few of the basic characteristics of the overall Rorschach performances of the three samples will be indicated. The mean numbers of responses are 26.49, 26.03, and 24.71 for Twin Samples 1 and 2 and the Parent Sample respectively. The sigmas are also roughly comparable. The three samples are also quite similar in $W\%$ and $D\%$. The two twin samples give almost identical numbers of Popular responses (3.44, sigma 1.48; and 3.58, sigma 1.46), as scored by the method of Rapaport, Gill, & Schafer (1946). The adults give somewhat more Popular responses (4.87, sigma 1.66) than either of the twin samples.

In terms of mean form level, the two twin samples are also highly comparable. The mean and sigma for Twin Sample 1 are 4.92 and .52. For Twin

Sample 2 these values are 4.93 and .81. The parents are significantly higher in mean form level than either twin sample ($p < .001$, $p < .025$), although the mean and sigma (5.25 and .42) are not extremely different. The values for all three samples are closest to an average response of *Fw+* quality.

Correlates of Mean Form Level

The surprising discrepancies between the otherwise highly comparable twin samples with respect to correlates of mean form level is apparent in the relationship with age. In Twin Sample 1, the Pearson r is .48, $p < .01$. In Twin Sample 2, however, this r is but .12. For both samples, however, correlations with sex are predictably nonsignificant. The correlation of mean form level with both age and sex is essentially zero for the Parent Sample.

Intellectual ability variables are obvious potential correlates of a mean form level score. Here again, however, results are divergent for the two twin samples. In the case of Twin Sample 1, the r 's with the WISC I.Q. scores are: Verbal, .22, nonsignificant; Performance, .40, $p < .05$; and Total, .34, $p < .05$. For Twin Sample 2, these r 's are -.06, -.15, and -.11, all nonsignificant.

Additional intellectual abilities tests included in the study were the Completion Test of verbal ability and the Addition Test of numerical ability. For Sample 1, the r with mean form level is .34 for the former and .24 for the latter, in the expected direction but nonsignificant. For Sample 2, these r 's are -.11 and -.30, both nonsignificant.

The Completion and Addition tests were also administered to the Parent Sample, for whom the r 's with mean form level are .43, $p < .001$, and .04, nonsignificant.

A like pattern of findings (greater similarity of Twin Sample 1 results to results for the Parent Sample) obtains with respect to a score for amount of autokinetic movement experienced in a test used by Voth and Mayman (1963) to measure ego closeness to versus ego distance from obvious features of exter-

nal reality. The autokinetic score developed for the study of twins and their parents is a "residual" score which, in effect, partials out preferred drawing size in a control test from the length of the line drawn to represent the autokinetic movement experienced in a ten-minute session. It is somewhat more refined than the raw line-length score, but is highly correlated with it.

In the case of Twin Sample 1, this autokinetic test score is correlated .35, $p < .05$, with mean form level, indicating that Ss with high mean form level scores experience relatively great amounts of autokinesis. For the Parent Sample, this r is a comparable .46, $p < .001$. For Twin Sample 2, however, this r is but .02, nonsignificant.

In general, then, results for Twin Sample 1 seem somewhat more in accord than results for Twin Sample 2 both with anticipation and with results for the Parent Sample. In addition to these findings, inconsistent or nonsignificant relationships have been found between mean form level scores for the twins and various scores used to represent cognitive control variables.

Heritability and Mean Form Level

The inclusion of 50 identical and 50 fraternal twins in the total study makes it possible to obtain estimates of heredity as a determinant of mean form level. Two approaches to heritability are being used in the study. The first approach, developed by Nichols (1964), is based on the significance of the difference between intraclass r 's for identical versus fraternal twins. The second approach, developed by Clark (1956) and employed extensively by Vandenberg (e.g., Vandenberg, Stafford, Brown & Gresham, 1966), employs an F test to evaluate the significance of the ratio between the fraternal twin and identical twin within-pair variance. Both analyses yield nonsignificant heritability estimates for the mean form level score. In addition, it is interesting that neither of the intraclass r 's for the mean form level scores of identical or fraternal twins is significantly different from zero. Apparently,

neither heredity nor the environmental factors *shared* by opposite numbers in these two groups of twins has a significant effect on mean form level, at least in the samples of the present study.

DISCUSSION

Our emphasis in describing these quantitative results is on overall mean form level. The fact that such obvious potential correlates as age, I.Q., and verbal ability scores bear inconsistent relations to mean form level in the two samples of twins suggests that this overall score may be of rather complex determination in the case of children and should be interpreted cautiously in developmental studies. In this connection, the unusual similarity of both hereditary and environmental factors for opposite numbers in the Twin Samples 1 and 2 should be reiterated. Each member of Twin Sample 1 shares the following with his counterpart in Twin Sample 2: 1. either the same genes (about half the twins used in the investigations of correlates are identicals) or genes from the same parents; 2. age; 3. parental abilities; 4. general home environment; 5. age and sex of siblings; 6. socioeconomic status, familial religious orientation, neighborhood, school, and a host of other potential behavioral determinants that should lead to unusual similarity of results.

The quantitative results for the mean form level scores of twins aged 8 to 19 are but one aspect of the uses to which this new scoring scheme is being put in our study. The inconsistency of the results for the overall form level score in the case of children is in itself not surprising in view of the large number of potential determinants of such an overall score and the likelihood that the balance among these determinants shifts from sample to sample.

The results reported here are in support of our overriding general impression that the special value of this well-conceived and highly differentiated method of form level scoring appears (in the case of children, at least) in *qualitative* analyses of entire Rorschach protocols. In the latter type of analysis,

this refined (and reliable) scoring scheme has proved of particular value in that it allows the scorer to take full cognizance of differences, for example, between the subject whose form level scores range from $F+$ to $F-$ and the subject whose scores are limited to $Fw+$ and $Fw-$. These two subjects could have *equal* mean form level scores, in spite of the gross differences in response indicated by their disparate *distributions* of form level scores. Only a careful evaluation of the scatter of form level scores for the individual child would seem to capture his unique approaches to reality-adherence in the course of the Rorschach Test.

The present scorer-agreement results will contribute toward alleviating the scarcity of scoring consistency studies which Holzberg (1960) has described in a general discussion of Rorschach reliability. Our results also support Holzberg's conclusion that rater agreement does not remain a problem when the training of scorers is sufficiently intense and the communication between them is maximized during the training phase.

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Correlates of Rorschach Reality Adherence in the Assessment of Murderers Who Plead Insanity¹

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Summary: Reality adherence measured by Mayman's system of Rorschach form level scoring was applied to the protocols of 43 individuals all of whom were pleading insanity to a charge of murder. Reality adherence level correlated significantly with judgment of legal sanity, contributed importantly to a factor analysis dimension of reality functioning, and was extensively related to measures of primary process thought and impulse. Reality adherence further was related to intellectual functioning and areas of past history. These results suggest that Mayman's reality adherence measure has substantial validity and is importantly related to other personality variables.

Mayman (1964) recently proposed a seven category scoring system for Rorschach form level which is based on a rationale which considers form perception to be a manifestation of reality testing. Mayman states "The form-quality of responses reflects in microcosm the quality and vicissitudes of a subject's relation to his object world . . ." He proposes that "The (Rorschach) form level maintained in the response process is . . . a revealing index of the way in which an individual goes about maintaining his hold on reality".

The present study compared a group of murderers on reality testing as determined by Mayman's reality adherence measure, and as measured by other means. In addition correlates of Mayman's reality measure with intellectual and personality variables were also determined. This was done as a test of the validity of Mayman's scoring system and as a means of furthering the understanding of factors that might be associated with levels of reality adherence.

Method

Forty-three individuals who had been consecutively admitted to a university psychiatric hospital for evaluation with regard to plea of insanity to the charge

of murder comprised the subjects for this investigation. The sanity-insanity judgment made by the hospital was considered to be one type of criterion of reality adherence. The intensive evaluation of these individuals also provided a number of other pertinent variables whose relationship with reality adherence could be determined.

The subjects were systematically evaluated both psychiatrically and through a battery of psychological tests which included the WAIS and the Rorschach. All tests were administered by the same examiner. Demographic, social history, psychiatric assessment and information about the crime comprised the other general areas of data which were available.

The Rorschach responses were scored according to the Mayman reality adherence system (1964). These scores were converted to weights given by Holt (1962). Holt's designated weights for Mayman's scoring categories form a continuum, ranging from a plus two designation for Mayman's superior form (F+) to a weight of minus four for Mayman's arbitrary form designation (F-). A reality adherence score for each murderer's protocol was determined by dividing the total of the murderer's weighted form level score by the number of responses in his protocol. This, in effect, gave a measure of overall reality adherence for each of the murderer's Rorschach protocols.

The Rorschachs were also scored ac-

¹This article is based on a paper read as part of a symposium: "Measuring Reality Adherence in the Rorschach" at the American Psychological Association meeting, New York, 1966.

cording to Holt's (Holt and Havel, 1960) primary process system. This method considers responses from the standpoint of manifestations of aggressive and sexual drive and of manifestations of formal thought or perceptual deviations. These primary process variables were considered to represent another type of criterion for reality adherence.

The reliability of the Rorschach reality adherence and primary process scoring was determined by a random selection of two of the Rorschach protocols from this sample, which consisted of a total of 50 responses. Each protocol was independently scored by two judges trained in this scoring system. Of 13 possible scoring categories for each response, the two judges were in exact agreement on all 13 categories in 48% of the total responses. They disagreed in only one category in 4% of the responses, in two categories in 26% of the responses. Thus, the raters agreed on at least 11 of 13 categories in 78% of the responses. It was felt that this reliability of scoring was adequate for the purposes for which it was being used.

The overall design of the study was a factor analytic one (Kahn 1965). The reality adherence score was one of 39 variables included in the factor matrix. Further, a 39 by 39 correlation matrix was run and the correlations between the reality adherence scores and all other variables were determined.

Results and Discussion

Reality Adherence and Insanity.

Against the criterion of the psychiatric evaluation of legal sanity as opposed to insanity Mayman's reality adherence measure correlated .492, significant at the .01 level. This indicates a moderate association between level of reality adherence and clinical evaluation of sanity. Since the criterion of legal insanity used was the McNaughton Right-Wrong Test, it is not surprising that a higher correlation was not found.

When considered in terms of the basic characteristics of murderers, determined from the factor analysis, Mayman's re-

ality adherence measure contributed importantly to the first and strongest factor, a sane-insane dimension, (Kahn, 1965). This factor was bipolar and accounted for 24.26% of the total variance. The principle variables and the loadings for it are given in Table 1.

Table 1

Factor I.
Primary Process-Insanity vs.
Secondary Process-Sanity
(variance 24.26%)

Variable	Loading
Total formal primary process (perceptual or logical distortion)	-.92145
Primitive aggressive drive	-.74117
Primitive libidinal drive	-.64978
Defense demand	-.66533
Defense effectiveness	.70375
Mayman's reality adherence	.69351
Sane	.56860

High reality adherence was one of the three main contributing variables to the *secondary process-sanity* pole of this factor. The reality adherence measure was clustered with high defense effectiveness and psychiatric judgments of sanity. This indicates that Mayman's measure related to adequate controls, accurate perception and logical thought processes. Since the other pole of this factor was a *primary process-insanity* dimension the reality adherence measure was found to be in sharp contrast with primitive drive expression, distorted perception, poor logic and a judgment of insanity.

Reality Adherence and Primary Process.

The correlational analysis of reality adherence with Holt's Primary Process scores is given in Table 2. Of the 12 Holt Primary Process scores which are uncontaminated by the reality adherence scoring as such, almost half reached statistical significance. Consistent with the other findings that reality adherence is related to judgments of sanity, and

to secondary process level functioning, a substantial inverse correlation was found between primitive primary process expression and reality adherence.

Thus the reality adherence measure seems to stand in opposition to primary process modes of expression. It is of note that the reality adherence measure correlated significantly with primitive drive manifestations of primary process (Level 1), but not with more socialized drive expression (Level 2). However, formal deviations of thought and perception both at socially acceptable and primitive levels, were, in this sample at least, associated with relatively poor reality testing. This may reflect some fundamental difference between primary process drive expression as compared with primary process manifestations in formal thought and perception.

Table 2

Correlations of reality adherence with Holt's Rorschach Primary process scores

Libido I	— .569**
Libido II	.187
Total Libido	— .048
Aggression I	— .548**
Aggression II	.016
Total Aggression	— .281
Formal I	— .586**
Formal II	— .446**
Total Formal	— .553**
Total Primary Process	— .301*

* Significant at .05 level

** Significant at .01 level

Reality Adherence and Intelligence.

Reality adherence was associated with level of intellectual functioning. The magnitude of these correlations was not large, as can be noted from Table 3. It is of interest that for this sample, the WAIS performance IQ was more highly correlated with Mayman's reality adherence measure than was verbal IQ. This may be an artifact of the sample since sociopaths, who in this

data were found to more likely have higher performance than verbal IQs, were also the individuals with less ego disruption. They tended to function intellectually more effectively than those murderers with grosser emotional disturbance, thus emphasizing the performance oriented cognitive style.

The finding that reality adherence is correlated moderately with level of intellectual functioning again adds support to the validity of the reality adherence measure.

Table 3

Correlations of reality adherence with intelligence test (WAIS) variables

Full scale IQ	.352*
Verbal IQ	.284
Performance IQ	.400**
P V	.206

* Significant at .05 level

** Significant at .01 level

Reality Adherence and Demographic Variables.

Table 4 indicates those non-test variables with which reality adherence correlated at a significant level. Since there were no predictions with regard to these relationships the possibility of their being a chance phenomenon is increased. However, of 16 variables in this category, significant correlations were found with five, or almost one-third. This is

Table 4

Correlations of reality adherence with demographic variables

School adjustment	— .332*
Number of siblings	— .356*
Sibling order	— .293*
Age	— .324*
Marital status	— .314*
Sane-insane	+ .492**

* Significant at .05 level

** Significant at .01 level

substantially more than the one significant correlation which would be expected from the 5% level of probability.

The meaning of these correlations is not obvious, but is consistent with the basic interpretation of the findings from the study of murderers. That school adjustment is negatively correlated with reality adherence follows from the fact that the most emotionally disturbed murderers were those who had had the relatively best past adjustment, including school adjustment. Briefly stated, murder for these individuals was associated with a pattern of recent severe ego disruption and hence low current reality adherence. On the other hand, those murderers with a history of poor prior adjustment tended to be the sociopaths who did not show a severe ego disruption when evaluated. Hence, the relatively better reality adherence.

The negative correlation with age appears related to the tendency for the elderly murderers in the sample to have senile or organic symptoms, while the younger murderers tended to be the sociopathic individuals who did not show the gross form level disruption.

That form level accuracy was inversely correlated with the number of siblings and sibling position is more difficult to understand. That the number of siblings may represent a social class phenomena, while higher sibling order may relate to the long observed phenomena that first born tend to show more

emotional disturbance than later born might possibly account for this finding.

Average Reality Adherence Level of Murderers.

The average reality adherence weighted score for the sample as a whole was -.327. The standard deviation was .601. This means that the average reality adherence level fell between Mayman's FW+ and FW- scores. These are considered weak form responses but not grossly poor or distorted. While this is a rather crass measure it might be of value for comparing the overall sharpness of reality adherence among various other clinical or non-clinical groups.

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An Approach to Use of Color on the Rorschach through Individual Color Preferences¹

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Summary: More must be learned of color and its possible relationships with the Rorschach before its interpretation may be taken with assurance. Twenty Ss were administered the Rorschach and a Color Battery of four tasks chosen to tap color preference. Preferences were analyzed for use of the color on the Rorschach plates; color response scores and form-level scores; relationship with color meaning for the subject. Significances were found between: (1) preference and use of color; (2) preference and CF and C scores; (3) plus form-level and preferences. Color meanings varied with each subject. Color preference may influence the subject's use of color on the Rorschach, as well as scores, regardless of what the preferred color may be or the amount available. Generalizations are not warranted on the basis of color or color use, especially as regards differential diagnosis.

Rorschach-connected research with color has dealt primarily with the form-color question, the interlocking effects of one upon the other. Many studies may be cited to support the supremacy of either side of the form-color question. Baughman (1958) has comprehensively and articulately reviewed voluminous literature. Before color's combined (with form) effects can be established, further efforts must be made to learn more of color itself and its possible relationships with the Rorschach.

As Rorschach (1942) himself underlined, finer discriminations must be made between colors themselves; their respective meanings and relationships to the individual must be considered. He made clear that all colors cannot simply be lumped together and considered as one.

Many factors are called into play in making color discriminations: physical, sensational, perceptual, cultural, and symbolic. From subject to subject differences are found on the bases of age, sex, socio-economic group, values, past associations and experiences with color. The wide range and nature of these differences within and between individuals make it clear that the single, undifferentiated topic of color may not be the

most fruitful approach to so highly complex a test component.

Color preference is here selected: the many facets which determine preferences are assumed operant within each individual regardless of what his preference choices may be; that is, regardless of which colors are actually preferred by that individual.

HYPOTHESES

Hypothesis One: that there is a relationship between color preference and use of Rorschach area containing the preferred colors. The word *preference* implies recognition of differences between hues, selection among them and a desirable quality for the subject. It is here suggested that preferred colors will have a positive attraction or valence for the subject, a result of which will be that the subject may be expected to use those areas of the Rorschach containing the color so preferred: the subject will respond to the area of his preferred color with a scorable response.

Hypothesis Two: that there is a relationship between color preference and scoring of the response to the colored area. It is here suggested that preferred colors may be more easily integrated into the response process, and that this effect may be measured along two dimensions:

(A) the color scoring continuum of FC, CF and C: that the most-preferred colors will yield an FC-scored response

¹ Taken from thesis submitted toward an M.A. degree.

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and the least-preferred will yield a CF- or C-scored response.

(B) *the form-level rating of the response*: that the most-preferred colors will yield a plus form-level rating; the least-preferred will produce a minus form-level rating.

Hypothesis Two suggests that if most-preferred colors have an integrative result and are more easily handled by the subject because of their positive meaning for him, this will be revealed in an FC score and/or a plus form-level rating. It also suggests the converse will be found.

Hypothesis Three: that there is a relationship between color preference and the meaning of color to the subject. It is here suggested that preference may in some way be a function of the meaning or meanings of the color for a subject, and that these meanings will vary between individuals as individuals vary from each other.

PROCEDURE

Subjects

The twenty volunteers used in this study were college students recruited from general psychology classes, and given no advance information about the project. The composition of the group was not restricted in any way except that no subject could be adjudged color blind or that the Rorschach protocol show psychotic features.

METHOD

Procedure was divided into three sections given in the following order:

Part One consisted of complete standard administration of the Rorschach test, given according to the Klopfer (Klopfer, Ainsworth, Klopfer, and Holt, 1954) method. This was given first so the subject might approach it with no cues regarding the purpose of the study.

Part Two, known as the Color Battery, consisted of four tasks administered to learn something of the subject's color preferences.

(1) *Indirect Sort*: A deck of forty color chips, the size of ordinary playing cards, was cut from construction paper closely matching the ten hues on the Rorschach

plates. Each hue was represented four times. Subject was asked to sort these chips into a series of ten boxes arranged in a line vertical to the subject, being told that this was a timed test of manual dexterity. Colors were recorded in order of proximity to the subject, one through ten. That color placed closest to the subject was designated #1 and assumed to be the most-preferred, and so on through #10.

(2) *Rank Order*: Given one chip of each of the ten hues, subject was asked to rank these in order of preference.

(3) *Direct Sort*: Again with a set of ten chips, subject was asked to sort these into three boxes marked respectively, Like, Neutral, Dislike.

(4) *Semantic Differential*: Form sheets were used, designed after Osgood (1957). These consist of a seven-point scale between twenty descriptive pairs of opposite words.

The final twenty pairs on this sheet were derived from an original list of 46 pairs of words found frequently to describe color throughout color literature. The original list was submitted to ten independent judges who rated both the colors and themselves on the 46 scales. The twenty pairs found to have the greatest discriminative power between hues and persons were used on the final sheet.

These twenty pairs were representative of four commonly mentioned facets of color, five pairs assigned to each: properties of color (such as retreating-advancing), emotional tone of color (such as tranquil-exciting), values assigned to color (such as prefer-not prefer), and clinical associations to color (such as aggressive-submissive). These twenty pairs were randomly assigned their order on the sheet.

Subject was given a hue sample (8" x 11") and asked to complete a differential sheet for that color sample. The procedure was repeated for the remaining nine hues, presented in random order. Lastly, the subject was given an identical sheet to be completed in the same manner using himself as the point of reference rather than a color.

Part Three was designed to verify the subject's eligibility for the study, and ef-

fectiveness of design.

(1) Subject was given a brief written questionnaire asking his understanding of the study and what led to his conclusions. No subject was aware of the purpose of the study.

(2) The Jensen Color Blind Test was given (1935).

RESULTS

A preliminary matter of importance is the amount of color available on the Rorschach plates themselves, as hues appear in varying amounts per blot and with varying frequencies. An attempt was made to compensate for the inequality of stimulus availability.

Together all areas of the same hue were assigned a total value of one, and each area was assigned a fractional value of this figure. For example, if a hue were represented four times, each area was assigned a weight of .25. This principle was applied throughout in reference to the counting of areas used, types of scores recorded and form ratings. If the same area was used twice by the subject, this was likewise counted.

For scoring color responses the Klopfer (1954) system was arbitrarily selected. In assigning form-level ratings the Hertz Frequency Tables (1951) were used.

All possible color areas were recorded for each subject in terms of: (1) whether or not the area was used. If the area was used, then (2) a color score and a form-level rating was assigned to the response.

To analyze the Semantic Differential, values assigned by each subject along the seven-point scale were recorded for each form filled out. These were measured against the comparable values assigned to the sheet on which the subject used him-

self as the point of reference. For each pair of words on the sheet, the individual's self-reference was compared with his rating of each color. The Generalized Distance Formula was applied according to the standard treatment of the Semantic Differential (Osgood, 1957). In this study the smallest difference was taken to represent the smallest difference between the subject's self-rating and a color, then assumed to be the subject's most-preferred. The largest was taken to represent the greatest difference between his self-rating and a color, then assumed to be the least-preferred. The ten colors were ranked from one through ten on the basis of this computation.

Each sub-test of the Color Battery was considered separately with the Rorschach for the purpose of analysis. However, the Rank Order and the Direct Sort were grouped together as agreement between these two tasks was 100% on Most-Preferred Color, 85% on Least-Preferred. Here separate computation did not seem justified.

Within each comparison with the Rorschach only the most-preferred and least-preferred colors were considered.

In all computations *N* refers to the appropriate number of responses, not the number of subjects.

The Wilcoxon Matched-Pairs Signed-Ranks Test was applied.

Tables 1 and 2 refer only to colors most-preferred as the number of available scorable responses for the least-preferred was so small that the test could not be applied, supporting Hypothesis One.

Table 1 shows that Rorschach areas containing colors most preferred in the Rank Order/Direct Sort and Semantic Differential were used with significant frequency.

Table 1
Relationship between Preferred Colors and Use of Rorschach Areas Containing those Colors

Sub-test	N	Maximum T for $p \leq .05$	T obtained
Indirect Sort	19	46	75.5
Rank Order/Direct Sort	16	30	27
Semantic Differential	16	30	30

Table 2 shows a significant relationship between scoring of response and colors preferred in the Rank Order / Direct Sort. The significance obtained, however, was in the direction of CF and C scores and not in the direction of FC scores as suggested in Hypothesis Two,

Part A.

Significances obtained in Table 3 were in the direction of plus form-level ratings as suggested in Hypothesis Two, Part B.

No relationships between color preference and meaning was found, as shown in Tables 4 and 5.

Table 2
Relationship between Rorschach Areas Containing Most-Preferred Colors
and Color Scoring of those Areas

Sub-test	N	Maximum T for $p \leq .05$	T obtained
Indirect Sort	7	2	4.5
Rank Order / Direct Sort	9	6	5.5
Semantic Differential	7	2	11.0

Table 3
Relationship between Form-level Rating and Rorschach Areas Containing
Most- and Least-preferred Colors

Sub-test	Most-preferred Colors	Least-preferred Colors
Indirect Sort	N = 9 p.05 = 6 T = 9	N = 7 p.05 = 2 T = 7
Rank Order / Direct Sort	N = 15 p.05 = 25 T = 20	N = 6 p.05 = 0 T = 3
Semantic Differential	N = 12 p.05 = 14 T = 15	N = 9 p.05 = 6 T = 4

Table 4
Percentage of Agreement between Color Battery Tasks for Most-preferred Colors

	Rank Order	Direct Sort	Indirect Sort	Semantic Differential
Rank Order	—	100	30	15
Direct Sort		—	55	55
Indirect Sort			—	20
Semantic Differential				—

Table 5
Percentage of Agreement between Color Battery Tasks for Least-preferred Colors

	Rank Order	Direct Sort	Indirect Sort	Semantic Differential
Rank Order	—	85	10	35
Direct Sort		—	25	35
Indirect Sort			—	0
Semantic Differential				—

DISCUSSION

The Sample

It was believed that a so-called 'normal' and/or functioning population would be especially appropriate to the study of color as these persons are considered relatively more stable in handling affect, and responses are scored accordingly. The most demanding test would seem therefore to be with this group, where differences do not reveal themselves as readily.

It would be mandatory to replicate the design with other populations of varying degrees of pathology before any assumptions about such groups might be formulated. It would be expected, however, on the basis of Rorschach rationale, that different color scorings would occur.

The factor of color sophistication was not considered. Consistent with the intent to stay as close as possible to the Rorschach plates, the particular color samples used were the ones to be evaluated by the subject. The materials were representative of the Rorschach hues, not of the hue-in-general, which would have many different saturations, shadings and so on. Finer discriminations within each hue could prove valuable.

The Materials

With materials as crudely selected as these, inequalities of stimulus-value are of course present, though to an unknown degree. Correction for this factor would include more exacting matching procedures, using a system such as that of Ostwald (1948) or Munsell (1946).

The Design

The significance of the direct color tasks, as opposed to the indirect, raises questions that must be explored further.

This may be a function of the 'normal' population sample operating with greater integration than those of manifest pathology. It also brings to mind the notion that external factors may be operating in the Rorschach process to a degree greater than frequently assumed; and that the use of colored areas may not be freely interpreted solely as a projection onto the blots without awareness on the part of the subject.

Concerning differential diagnosis, it may be stated that hypotheses regarding the subject cannot be made from gross interpretation of the colored areas. More especially, formulations should not be made without regard for the individual's evaluation of the color and the meanings of the color for him. For example, frequent interpretation associating red areas with morbidity may not show sufficient cognizance of the reality factors operating in a response which calls such areas 'fire' or 'blood.'

The Semantic Differential data in this study showed clearly that not only are there different reactions to the several hues but also that individuals preferring the same color may view it very differently. No two Distance Measure profiles were alike for the same color: the meaning of the color varied from individual to individual who preferred it most (or least).

Following this, diagnostic generalities and interpretations made regarding the color component need to be re-examined. In this connection many such statements are scattered throughout Rorschach literature (Bohm, 1958; Phillips and Smith, 1953; Warner, 1949; Weiner, 1961, 1964). This study contends that such inductions are not warranted and construct superficial measures for clinical use and instruction.

This study further indicates that the use of the area and its meaning need not rest upon the amount of color available. The range of preferred colors and their respective use was dependent neither upon the size of the area nor the frequency of the color's appearing in the blots. Use was made of preferred color regardless of the amount available. For example, not only does red occur more frequently, but it also has far more actual area than yellow. Red also does not share with other chromatic colors on the cards where it appears. Yet the subjects preferring the yellow would find and use it.

A clinical implication of this principle may be stated as follows: the amount of preferred color available may affect the total number of color responses in a single record. As example, the subject who

prefers red may use all red areas available because he prefers this color for many and varied reasons. By using a preferred color which presents many opportunities for his use, he elevates the total number of color responses as well, thereby influencing his test profile.

The significant use of preferred colors in the direction of CF and C scores may also influence the test profile in a like manner. This may suggest the attracting power of the preferred colors even when form was not easily managed. Both most- and least-preferred colors drew good form-levels which may suggest that good form is acknowledged regardless of color content, or that form is relied upon when color is least-preferred. It is suggested that the color continuum and form-level continuum may not be parallel indices of development and/or integration, as has been suggested in the literature (Phillips and Smith, 1953).

The Semantic Differential is clearly indicated as a fruitful technique for color study. This paper wishes to focus particularly upon the scales of emotionality, which showed beyond doubt that hues vary from subject to subject with respect to being considered emotional.

As many factors interlock to shape preferences, it is here indicated that assumptions not be made by clinicians regarding either color itself or its use on the Rorschach without considering the meaning and function of these for the individual.

Generalizations are not warranted on the basis of color or colors, especially as regards differential diagnosis.

Great caution is urged in interpreting the color determinant.

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The Relationship between Defense Preference and Response to Free Association¹

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Summary: Psychoanalytic theories suggest that individuals with obsessive defenses, with hysterical defenses, and borderline psychotic individuals respond differently to free association. An experimental analogue of the psychoanalytic session was used to test these ideas. The subjects were 68 male college students, chosen on the basis of the Rorschach and MMPI. Contrary to predictions, obsessive subjects generally associated more freely and showed more involvement in the sessions than hysterical subjects. As expected, hysterical subjects were more silent and blocked and made fewer self-observations than obsessive subjects. Borderline subjects were judged to have less control over drive than the two defensive types.

Psychoanalytic theories about the process of free association are closely related to theories about personality. Bellak (1961), for example, has proposed that two processes operate in free association: a "regression in the service of the ego" and an adaptive recovery to heightened abilities in self observation. This adaptive recovery is related to R. Sterba's concept of the "ego-split", that is, the ego observing itself (Sterba, 1934). Bellak suggests that hysteric patients adapt to the regressive aspect of free association, but are impaired in the syncretic aspect. For obsessive patients, however, the reverse may be true.

Rapaport (1958) also contrasts the responses of obsessives and hysterics to free association. He sees the situation of free association as disturbing the relative autonomy which the ego maintains over drive and environment. Free association pulls the stakes from under obsessive individuals, who have relatively less autonomy from the environment, and thus they seek out new supports in the situation. Hysterics and borderline psychotics, who have less autonomy over their drives, may become overwhelmed by drive in situations of diminished external input, such as free association.

¹The data for this study were originally collected in a project supported by the National Institute of Mental Health (M-5029), Edward S. Bordin, principal investigator. This study is based upon a dissertation in partial fulfillment of requirements for the degree of Ph.D. at the University of Michigan.

Bellak (1961), Rapaport (1958) and Federn (1952) all indicate that free association profoundly affects the borderline psychotic. They assert that his impaired defensive systems may break down during free association so that drives and primary process material emerge. In a test of these theoretical notions, individuals with predominantly obsessive defenses, individuals with predominantly hysteric defenses, and individuals with "borderline psychotic" tendencies were presented a task of free association, and their performances compared. It was hypothesized that hysterical subjects would be more spontaneous and involved and, in general, perform better on the task than obsessive subjects. On the other hand, it was predicted that hysterical subjects would show more blocking and silence, due to their reliance on repressive defenses. The obsessive style, in contrast, should lead to a more loquacious response to free association. The intellectualizing obsessive person should dwell more on abstract ideas or isolate his feelings by paying more attention to immediately environmental stimuli. It was predicted that the hysterical person, by comparison, would show more interest in interpersonal experiences in his associations. Another hypothesis suggested that the more introspective obsessive subjects would make more self-observations during the sessions than would the hysterical subjects. A final prediction compared the

performance of the borderline psychotic subjects with that of the two neurotic groups: borderline subjects should allow more primary process material and show less control over drive in the situation of free association.

Method

Subjects

The subjects were chosen from a group of 100 male college students who had volunteered to participate in the study. They were told in advance that they would have to reveal themselves in the course of the experiment, but they did not know the exact nature of the experimental task.

Tests

From the original 100 subjects, three subgroups were chosen: a group characterized by the reliance on obsessive defenses; a group characterized by the reliance on hysterical defenses; and a "borderline psychotic" group. The Minnesota Multiphasic Personality Inventory (MMPI) and the Rorschach Test were used to assess these variables. An objective scoring system was devised for both tests, so that each subject could be assigned two scores on the obsessive, hysterical, and borderline dimensions.

On the MMPI the subject received a composite score for each variable based on his scores on subscales relevant to that variable.² Thus, the formulae for scoring the three dimensions were: Obsessive score = $2Pt + D$, Hysterical score = $2Hy + Hs + L + K$, Borderline score = $2Sc + F + Pd + Pa$.³

The hysterical group consisted of those individuals whose scores fell in the top third of the distribution of hysteria, in the lower two thirds of the distribution of obsession, and in the lower nine tenths of the borderline dimension. It was not possible to use an analogous procedure for picking the obsessive and borderline groups, due to the degree of overlap between the scores on these two

dimensions. (r between obsessive and borderline scores = $+0.69$. In contrast, the hysterical scores correlated $-.06$ and $+0.10$ with the obsessive and borderline scores, respectively.) The following criteria, therefore, were devised to distinguish between obsessive and borderline cases, picked from the top third of the two distributions:

A case was called obsessive if:

1. $Pt > Sc$
2. $Pt > 60$
3. $Hy, Pd < Pt$

A case was called borderline if:

1. $Sc > Pt$
2. $Sc > 65$
3. $Hy < Sc, Pd$
4. Pd not peak scale

A manual for rating defensive preference and borderline psychotic tendencies on the Rorschach was constructed by drawing the seemingly most significant, reliable, and easily identified indices of these three variables (Beck, 1952; Klopfer & Kelly, 1946; Schafer, 1954). A "sign" approach was used—if one of the indices of defense or borderline traits was present in a subject's record, he was given a certain number of points on that dimension. The weights given an index depended on its supposed importance to the variable in question. The inventory consisted of scoring categories such as $F+$, and more clinical signs, such as degree of elaboration of the response, etc. A subject's score on a given variable equalled the sum of all the points he received on that dimension. The reliability of these composite scores is demonstrated by the close agreement of the three judges, all experienced clinicians, who rated the protocols. Kendall's W 's for the three dimensions were $W_H = .83$, $W_O = .76$, $W_B = .75$.

The two defensive samples consisted of individuals scoring high on the relevant dimension, low on the other defensive dimension, and low on the borderline scale. As with the MMPI measure, individuals with relatively high scores on the borderline dimension were excluded from either defensive group in order to obtain some degree of control

²The help of James C. Lingoes in devising the criteria for measuring defensive preference on the MMPI is gratefully acknowledged.

³Standard scores, without K correction.

over pathology. The borderline sample was composed of those individuals with the highest borderline scores, regardless of defensive preference.

Since the MMPI and Rorschach measures did not correlate, essentially two separate samples, of three groups each, were chosen. r 's between the two measures of the same variable were: $-.01$, $-.05$, and $-.01$. For the Rorschach sample, the hysteric group consisted of 21 subjects; the obsessive group, of 13 subjects; and the borderline group, of 11 subjects. In the MMPI sample, 8 subjects made up the hysteric group; 9, the obsessive; and 6, the borderline. The data were analyzed separately for each sample.

Procedure

The current study utilized Bordin's (Bordin, in press) experimental analogue of the psychoanalytic situation. The subjects were given the task of free associating for thirty minutes. The experimenter sat silently behind the subject who lay on a couch. The taped recordings of the subjects' associations were rated along several dimensions. The rationale and details of this method have been described elsewhere (Bordin, 1966). Each subject was assigned a rating on Bordin's scales for adequacy of response to free association: a scale reflecting general adequacy of response and three related scales—spontaneity, freedom, and involvement. The records also were classified as to content: silence, abstract ideas, communications about interpersonal matters, communications about the task, communications about immediate environmental stimuli.

In addition to Bordin's scales, several other variables were examined. First, for each subject the total number of seconds of silence during the session were counted. As a measure of loquaciousness, the total number of lines of typescript were tabulated. Second, the number of self-observations (unit of analysis was the sentence) were counted. Each self-observation was further categorized as to whether it applied to the present or the past, and as to the degree

of self-reflection involved. For example, self-observations ranged from self-questioning about motives and behavior, to statements about inner conflicts and feelings, to descriptions of traits or feelings. The subject's total score of self-observation equalled the number of such statements made, each times its assigned weight. Raters could identify self-observations and place them in the categories quite reliably. Two scorers achieved the following agreement for ten trial cases: $r = .87$.

Finally, each record was assigned a score reflecting the degree of primary process or drive material allowed into the associations. Blatantly sexual or aggressive content, unusual or peculiar associations, and autistic or unintelligible material were considered primary process manifestations. For example, a subject who dwelt on gory, bloody images, or whose speech lost meaning would have received a high score on this scale. A satisfactory degree of agreement between two raters of this variable was obtained on ten trial cases: reliability (Horst's method) for the two raters was $.83$.

Results

Adequacy of Free Association

Contrary to expectation, obsessive subjects in both the MMPI and Rorschach samples performed better on the free association task than the hysterical subjects. The median scores of all groups on Bordin's scales are depicted in Table 1. First, obsessive subjects obtained higher global ratings for adequacy of response to free association than hysterical subjects. The median test indicates that these differences are significant only for the Rorschach sample ($p < .05$). Second, the results yield the surprising and contradictory finding that obsessively oriented individuals obtained significantly higher scores on involvement during the free association sessions than hysterically oriented ones. The Mann Whitney Test showed that these differences were significant for both the Rorschach and the MMPI samples ($p < .05$, in both cases). The Mann-Whitney

Test again was used to compare scores of the two defensive groups on the dimension of freedom versus inhibition. As predicted, hysterical subjects showed more inhibition than obsessive subjects. Differences between the two groups were significant for the Rorschach sample ($p = .03$), but barely missed significance for the MMPI ($p = .06$). Results fail to support the hypothesis that hysterically oriented individuals would show more spontaneity during the sessions than obsessively inclined subjects. Indeed, obsessive subjects from both samples tended to have slightly higher scores, although these differences were not significant. Note that the scores of the borderline groups closely parallel those of the obsessive groups.

groups would make relatively more self-observations, regardless of verbal outlay, than hysterical groups. An analysis of the proportions of total number of self-observations to verbal outlay did not yield the predicted differences between groups. If, however, the self-observations are broken down into the "past" versus "current" categories, interesting differences appear. In both the Rorschach and MMPI samples significantly higher numbers of the self-observations made by obsessives fall in the "past" (P) category; higher numbers of self-observations of hysterics fall in the "current" (C) category. These data appear in Table 3. This kind of analysis takes on meaning because the "current" versus "past" distinction seems to reflect different degrees of in-

Table 1

Median Scores of Obsessive, Hysterical, and Borderline Groups
on Adequacy of Response to Free Association

	Global Score	Involvement	Freedom	Spontaneity
Rorschach sample				
Obsessive	3.7	8	9	7
Hysterical	3.1	6	6	6
Borderline	3.5	8.5	9	7.5
MMPI sample				
Obsessive	3	9	8	8
Hysterical	2	5.5	4	7
Borderline	3	6	8	8

Content of Associations

None of the hypotheses regarding differences in content ratings for obsessive and hysterical subjects was supported by the data. Chi square tests showed that the categories of content did not differ from group to group. It may be that such comparisons require finer measures of content than a global rating of the content of the session, as used here.

Self-Observations

It had been predicted that obsessive

trosppection. For example, most C statements were remarks like "I wonder if others find this task difficult." A P statement such as, "I wonder why I'm so masochistic," seems to show a more clearly introspective urge. As a matter of fact, significantly larger numbers of flat statements about the current task contributed to the total scores for the C self-observations; total scores for P self-observations were composed of significantly more statements about the self rather than the task. Thus, if P self-observations are considered as rep-

resenting the more introspective efforts, the original hypothesis that obsessive individuals show more self-reflection than hysterical individuals is partially confirmed.

Amount of Silence

It was predicted that hysterical defenses would yield more pauses and silence during the free association sessions than would obsessive defenses. Comparisons of total seconds of silence

per subject between obsessive and hysterical groups yielded significant differences only for the MMPI. The mean numbers of seconds and values of t are presented in Table 4. On the other hand, the Mann-Whitney U Test does reveal significant differences in the distributions of the scores in the two groups for both the MMPI and the Rorschach. That is, there is some suggestion that most obsessive subjects spoke fluently, but a few were totally blocked.

Table 2

Frequencies of Current and Past Self Observations

	Hysteric	Obsessive	Borderline
MMPI sample			
#C	6.5	21.5	11.5
#P	4.5	54.5	46.0
Totals	11.	76.	57.5
Chi square = 9.3*			
Rorschach sample			
#C	29	7.5	20.5
#P	41	31.	73.
Totals	70	38.5	93.5
Chi square = 7.13**			

Note: Numbers represent an average score of two raters

*Significant at .01 level, one-tailed test

**Significant at .03 level, one-tailed test

Table 3

Mean Values of Seconds of Silence and Number of Lines in Transcripts

	Hysteric	Obsessive	Value of t
Seconds of silence			
MMPI	698''	304 ''	1.92*
Rorschach	536''	317 ''	1.29
Number of lines			
MMPI	117	201	.966
Rorschach	155	195.4	.642

*Significant at the .05 level, one-tailed test

Loquaciousness

To test the hypothesis that an obsessive orientation would mean a loquacious response to free association, the total number of typewritten lines in each transcript were examined. As depicted in Table 4, *t* tests revealed that the differences between mean number of lines for the obsessive and hysterical groups did not reach significance, although they lie in the predicted direction.

Control over Drive and Primary Process Thought

Finally, it was predicted that borderline subjects would show poorer control over drive in the free association task. A median test was used to test whether the borderline protocols received higher ratings for drive content than those of the other two groups. As shown in Table 5, comparisons between the borderline and other groups divulged that significantly more borderline cases than obsessive or hysterical ones fall above the median on this scale.

Discussion

The results of this study indicate that individuals characterized by contrasting defensive styles—obsessive, hysterical, or in the case of the borderline psychotic, by weakened defensive systems—react in a consistently different manner to the task of free association. The findings were similar for both sets of subjects chosen by the MMPI and the Rorschach Tests. Immediately the question arises: why do these two measures which do not correlate with each other correlate with the behavioral task? Apparently, the MMPI and the Rorschach measures picked up different aspects of defensive styles, aspects which converged, however, in a patterned response to free association. What the differences in defense tapped by the two measures may be remains an open question for further study.

In spite of the problems of measurement in the independent variables, this study has demonstrated a relationship between personality characteristics and response to free association. Previous research has not always met with suc-

Table 4

Median Tests for Borderline versus Obsessive and Hysterical Subjects
on Degree of Primary Process Content

	Neurotic (Hysteric and Obsessive)	Borderline
Rorschach		
	11	8
Above median	23	2
Not above median	34	10
Total		

Chi square = 5.3, $p < .025$, one-tailed test, corrected for continuity

	Neurotic (Hysteric and Obsessive)	Borderline
MMPI		
	1	3
Above median	16	3
Not above median	17	6
Total		

Chi square = 3.2, $p < .05$, one-tailed test, corrected for continuity

cess in attempting to demonstrate such a relationship. Bordin (1966), surveying the response to free association of a large, less select sample, found ambiguous results for certain Rorschach scores, suggestive results for a reversible figures task, and marginal results for the MMPI scales. By selecting special sub-samples, the current investigator was able to obtain more pointed results.

Not all the data of the current study, however, support specific expectations about this relationship derived from psychoanalytic theory. First, the evidence fails to substantiate Bellak's notions which posit an impairment in ability to regress during free association for obsessive individuals. Indeed, they performed better than hysteric subjects on all scales measuring ability to free associate. As a group they were more involved, and just as spontaneous. The obsessive subjects, with their supposed anal characteristics, might be expected to have a more docile, cooperative attitude toward authority, and thus be more likely to produce associations for the researcher. Such an attitude, however, would more probably lead to increased verbal outlay, which did not occur here, than to the greater feeling which marked the obsessive subjects' performances. The involvement and feeling shown by obsessive subjects belies analytic theory which posits a disturbance in the obsessive handling of affect. The obsessive subjects here were characterized by intellectualization and introjection, but not by isolation of affect during free association.

On the other hand, subjects with hysterical defenses did show difficulty in the syncretic aspect of free association, as presumed by Bellak (1961). That is, they made the fewest number of self-observations during the course of the sessions. Many of the obtained differences between the hysterical and obsessive groups may be attributed to the hysterical subjects' reliance on repressive defenses. The effects of repression were manifest in their large number of pauses and blocks and in lowered scores on the scale measuring "freedom". It

would seem that the hysterical repressive response to an initial contact with free association overrides all else.

These findings would imply that Bellak's separation between pathology of the syncretic and regressive sides of free association does not necessarily hold. Instead of the converse relationship he hypothesized, a direct relationship between ability to adapt to the two aspects was found in this study with non-psychiatric patients. Perhaps the individual has to have intact "syncretic" functions to be able to "regress in the service of the ego."

The hypothesis about the effect of free association on the borderline individual was supported by the results of the present study. The data are consistent with the theories of Federn, Bellak and Rapaport who predict that the situation of free association effects a loosening of control over drive and the emergence of primary process thought in the borderline schizophrenic individual. The borderline subject's over-all good performance on the task, as well as his high proportion of self-observations, conforms less well with descriptions in the literature. In these two respects, he performed much like the obsessive subject. Indeed, the borderline sample was composed largely of individuals with obsessive types of defenses. Thus, it is likely that the borderline and obsessive groups differed not in style of defense, but in effectiveness of defense and degree of anxiety.

In comparing results of this study with theoretical expectations, it should be remembered that the subjects were not psychiatric patients. It would be reasonable to assume that their defensive patterns are less unbending and extreme than those of psychiatric patients. Moreover, the experimental situation, unlike therapy, represented the subjects' initial exposure to free association. Typical patterns of response may emerge or change with repeated sessions. A crucial difference between the experimental situation and actual psychotherapy, then, lies in the factor of a single session versus repeated ses-

sions. Thus, some degree of caution is indicated in generalizing from the results of this study.

Another precaution arises from an over-all examination of the results of this study. The difference in the performance of all three groups may stem from another variable than defensive style: namely, differences in motivation to comply with the experimental task. By virtue of their need to deny psychological difficulties, hysteric individuals may have little motivation for a task which demands self-revelation and attention to self. As a matter of fact, the MMPI sub-scales on which the hysterical subjects were chosen are largely composed of items which deny implications of emotional difficulties and self-dissatisfaction. In contrast, the obsessive defense appears to be characterized by more anxiety about the self. Again the MMPI scales which were used to select the obsessive sample are measures of anxiety and discomfort. Thus, the obsessive subjects may have had more motivation to comply with the task. Finally, borderline subjects would be motivated to comply with the task for two reasons: their predominantly obsessive defenses and, because they were the most disturbed subjects, their heightened discomfort with themselves.

These speculations about motivation have implications for further research of this kind. The findings would suggest that the motivation of subjects serving in experiments on psychotherapeutic phe-

nomena is a variable which warrants attention. If such factors as anxiety, discomfort with self, degree of psychopathology, as well as number of sessions do affect performance on such tasks, then the similarities between experimental and therapeutic situations may be reduced.

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A Normative and Comparative Study of the Hand Test with Normal and Delinquent Children

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Summary: Normative data obtained on the Hand Test from 114 secondary school boys, 52 institutionalized male delinquents, and 26 institutionalized female delinquents, were compared. Significant differences were in the expected direction for certain scores. Comparison with the "equivalent" American samples given by Wagner shows marked differences. Looseness of definition of certain scoring categories affected interscorer reliability.

As stated by Wagner, (1962a), "The Hand Test is a diagnostic technique consisting of ten cards approximately 3 in. x 5 in. in size which utilises pictures of hands as a projective medium. On each card except the last a different picture of a hand is portrayed. The tenth card is blank. The cards are presented one at a time and the subject must project by telling what the hands are doing. For the last (tenth) card the subject must imagine a hand and tell what it is doing."

A number of investigations have been undertaken to demonstrate the validity of the Hand Test, particularly as a short projective technique for separating out diagnostically discrete groups. The majority of such studies have been conducted by E. E. Wagner, who has produced findings which illustrate the test's power to differentiate between Neurotics and Schizophrenics (Wagner 1962b); satisfactory and poor employees in a sheltered workshop (Wagner and Copper, 1963); and aggressive behaviour amongst institutionalised schizophrenics (Wagner, 1963b). Wagner and Medvedeff (1963) suggested the test may also be able to usefully diagnose between delinquents who are aggressive, and potentially assaultive, and those who are not; while Hodge, Wagner and Schreiner (1966), using hypnosis to induce specific emotional states in their subjects, produced findings which were considered

to demonstrate the construct validity of the Hand Test.

In contrast to the findings of Wagner and associates, only two studies have been published which have produced non-significant results. Huberman (1964) attempted to replicate the findings of Wagner and Copper (1963) but found none of the expected hypotheses confirmed, nor any trends to be observed; while Drummond (1966) was unable to support the findings of Wagner and Medvedeff (1963).

The Hand Test was considered to have potential as a quick and useful projective test, but the authors felt it necessary to investigate whether the original measures derived by Wagner (1962a) were applicable to apparently equivalent Australian ones. Several normative studies were undertaken using:

- (a) a randomly selected group of 114 secondary school boys
- (b) 52 delinquent and institutionalized boys and
- (c) 26 delinquent and institutionalized girls.

Statistical comparisons were made between the scores obtained from the group of delinquent and normal boys and comparative studies were made between the norms of the normal boys, delinquent boys, delinquent girls and those norms produced by Wagner in the Hand Test Manual (1962).

PROCEDURE

The normal population of 114 boys between the ages of 13-18 years were randomly selected from a population of nearly 1200 secondary school boys in a State Technical High School. The sample mean I.Q. was 101 and S.D. 11.4. All the boys selected co-operated in doing the test using the instructions given by Wagner. None were known as delinquents to the Department of Social Welfare. The Hand Test results of 52 delinquent boys placed in a reformatory were randomly selected from the population of delinquent boys seen for psychological assessment by the Psychology Branch of the Department of Social Welfare in South Australia over a period of three years. All subjects had appeared before juvenile courts for a number of criminal offences and in the majority of cases, had at least two previous court appearances before institutionalization. The same procedure was used for the selection of a group of 26 delinquent girls most of whom had been institutionalised on a charge of "uncontrolled" and had been involved in promiscuous sexual behaviour. The authors independently scored the protocols for each of the three populations and consulted in cases where their scores disagreed.¹

Test responses were scored according to the categories outlined by Wagner (1962) and can be briefly described as follows.

AFF (Affection): Interpersonal responses involving an interchange of bestowment of pleasure, affection or friendly feeling, e.g. "waving to a friend—a greeting".

DEP (Dependence): Interpersonal responses involving an expressed dependence on or need for succour from another person, e.g. "begging . . . pan handling".

COM (Communication): Interpersonal

responses involving a presentation or exchange of information, e.g. "stressing a point in conversation".

EXH (Exhibition): Interpersonal responses which involve displaying or exhibiting oneself in order to obtain approval from others, or to stress some special noteworthy characteristic of the hand, e.g. "a ballet dancer with graceful hand movements".

DIR (Direction): Interpersonal responses involving influencing the activities of, dominating, or directing others, e.g. "policeman saying stop".

AGG (Aggression): Interpersonal responses involving the giving of pain, hostility or aggression, e.g. "a punch in the mouth".

ACQ (Acquisition): Environmental responses involving an attempt to acquire or obtain a goal or object. The movement is ongoing and the goal is as yet unobtained and, to some extent, still in doubt, e.g. "reaching for something on a high shelf".

ACT (Active): Environmental responses involving an action or attitude designed to constructively manipulate, attain or alter an object or goal. ACT responses are distinguished from ACQ responses in that the object or goal has been, or will be, accomplished and the issue is therefore not in doubt, e.g. "writing with a pencil".

PAS (Passive): Environmental responses involving an attitude of rest and/or relaxation in relation to the force of gravity, and a deliberate and appropriate withdrawal of energy from the hand, e.g. "just dangling over a chair arm".

TEN (Tension): Energy is being exerted, but nothing or little is accomplished. A feeling of anxiety, tension or malaise is present. TEN responses also include cases where energy is exerted to support oneself against the pull of gravity accompanied by a definite feeling of strain and effort, e.g. "stretching and tensing the fingers".

¹ The help given in administering the tests to the normal sample by Misses H. Bartley, I. Kulkurs, J. Knauerhase and Messrs. G. Clunies Ross, N. Greet and K. Were is gratefully acknowledged.

CRIP (Crippled): Hand is crippled, sore, dead, disfigured, sick, injured or incapacitated, e.g. "a dead person's hand".

FEAR (Fear): Responses in which the hand is threatened with pain, injury, incapacitation, or death. A fear response is also scored if the hands are clearly perceived as meting out pain, injury, incapacitation, or death to the subject or to a person with whom the subject identifies. e. g. "trembling, it's frightened by something".

DES (Description): The subject can do no more than acknowledge the presence of the hand with perhaps a few accompanying inconsequential descriptive details or feeling tones, e.g. "just a hand".

BIZ (Bizarre): A response predicated on hallucinatory content, delusional ideation or other peculiar pathological thinking. The response partially or completely ignores the drawn contours of the hand and/or incorporates bizarre, idiosyncratic, or morbid content. One genuine BIZ response is pathognomic of serious disturbance, e.g. "a crocodile creeping up the wall".

FAIL (Failure): Subject can give no scorable response whatsoever to a particular card.

Some of these scores are combined to make up the following categories.

INT (Interpersonal responses): The INT responses are those involving interpersonal relationships of either a positive or negative nature with other people.

ENV (Environmental responses): ACT, ACQ and PAS make up the ENV responses and reflect the person's tendency to be involved with interpersonal relationships of an object oriented nature rather than of an interpersonal nature.

MAL (Maladjustive responses): These are TEN, CRIP and FEAR, and are thought to represent adjustment problems that the person is experiencing.

WITH (Withdrawal responses): This category consists of DES, FAIL and BIZ, and reflect a pathological withdrawal from interpersonal relationships with other people or concern with the world around them.

PATH (Pathology scores): This is a rough measure of the amount of psychopathology in a record.

AOR (Acting Out Ratio): The sum of AFF + DEP + COM scores compared to DIR + AGG scores, comprises the AOR, which is designed to measure acting out behaviour.

H-L (High minus Low score) is a measure of psychological disturbance shown by differences in response time, the scores in this case being the latency times recorded with each card presentation.

AIRT (Average Initial Reaction Time): This score shows the time the individual needs to organise his perceptions.

R (Response total): which is the total number of responses given for each record.

RESULTS

The characteristics of the population are set out in Table 1, together with the original measures of central tendency presented by Wagner, (1962) for comparable groups.

The differences between Wagner's and the present writers' groups are obvious and are most marked between the Acting Out Ratios. It is doubtful whether these differences are a result of age differences between the groups, for no age trends were shown either in an unpublished study by G. Gloss of a group of 205 children ranging from 7 to 15 years or within the scoring categories of the "normal" boys in our sample who ranged from 13 to 18 years. This of itself is extremely surprising since one would surely expect differences resulting from psychological and social growth factors. If these results are accepted one would have to say that the "behavioural tendencies" measured by the Hand Test are fixed by age 7.

Table 1

		Australian High School	Wagner High School 50 Males + 50 Females	Australian Delinquent Boys (N=52)	Wagner Delinquents 50 Male + 50 Females	Australian Delinquent Girls (N=26)
INT	Mdn	5.3	6.1	6.1	5.1	4.8
	Q3-Q1	2.4	3.7	4.2	2.0	2.2
ENV	Mdn	6.2	7.0	6.0	4.4	5.3
	Q3-Q1	3.8	4.6	6.3	1.9	2.4
MAL	Mdn	0.5	1.3	.64	0.7	1.0
	Q3-Q1	1.2	2.5	.82	1.5	0.7
WITH	Mdn	0.1	0.0	0.0	0.0	0.8
	Q3-Q1	0.6	1.1	.80	0.5	1.6
AFF+	Mdn	1.2	2.4	0.9	1.7	1.0
DEP+	Q3-Q1	1.8	3.1	2.5	2.2	1.0
COM						
DIR+	Mdn	3.7	3.0	4.3	2.5	3.5
AGG	Q3-Q1	1.9	2.3	2.8	1.3	1.4
	Mdn	11.4	14.9	12.7	10.0	10.2
R	Q3-Q1	4.4	9.3	8.3	2.0	2.9
	\bar{x}	7.8	5.6	8.8	9.9	8.3
AIRT	SD	4.0	2.4	4.2	4.4	5.6
	\bar{x}	20.7	12.8	23.6	28.0	12.0
H — L	SD	13.5	8.4	17.7	19.6	3.4
	Mdn	2.0	2.0	2.8	1.3	1.8
PATH	Q3-Q1	2.6	2.9	3.3	2.4	4.2
	\bar{x}	14.6	16.2	15.4	14.6	15.3
AGE	SD	1.0	1.1	.8	1.6	1.8

Wagner's groups did consist of equal numbers of males and females, and possibly sex differences may account for the divergent results. Even so, by combining the delinquent boys and girls, the results, particularly the Acting Out Ratios (AOR) still diverge from Wagner's delinquent group to an extent which cannot be explained simply on the basis of sex or age differences. The possible reasons for these differences between the American and Australian delinquent and normal samples appears most likely to be due to selection factors but it is clear that the use of, for example, an unbalanced AOR as a measure of outwardly directed aggression needs to be considered cautiously and in relation to the AORs of the particular social group from which the individual was drawn.

In statistically comparing the Australian normal with the Australian male delinquent sample on each of the scor-

ing categories of the Hand Test, the following results were obtained:

1. AFF scores differed significantly between the groups ($X^2 = 4.2$, $.02 < p < .05$ for 1 d.f.) with delinquent boys producing fewer responses reflecting less positive interpersonal attitudes.

2. DEP, COM, EXH, DIR. No significant differences yielded.

3. AGG scores varied significantly ($X^2 = 7.01$, $.02 < p < .05$ for 2 d.f.) supporting the hypothesis that delinquents will produce more responses associated with hostile or hurtful attitudes and behaviour toward others.

4. ACQ. No significant difference.

5. ACT. It was hypothesised that delinquent youths, having difficulty in relating positively with other people, would tend to have higher ACT scores, reflecting their more impersonal involvement with their environment. The cutting point for the groups was made at up to 5 ACT responses against re-

sponses 5+. The results were not significant. ($X^2 = .017, p > .05$ for 1 d.f.)

6. PAS scores. The absence of the expected difference in the ACT category carried less significance when PAS, also part of the INT score, was considered. Here it was found that the normal group tended to have one or more PAS scores compared with no PAS in the delinquent group. ($X^2 = 2.96, .05 < p < .1$ for 1 d.f.) While the level of significance is rather low, it does suggest the tendency for the normals to be more "passive" rather than "active", or better stated, more compliant and socially submissive than the delinquent group.

7. TEN, CRIP, FEAR. No significant differences. The lack of significance in these three categories is surprising to the authors who feel that their delinquent population could very often be said to be maladjusted and to have difficulties "of which the individual is at least partially aware, . . . because of subjectively experienced inner weakness and/or external prohibition." (Wagner, 1962a, p.22) It appears unlikely that normal technical high school students would feel the same degree of "apprehension and distress" that our delinquents did, yet the MAL score, Table 1, (based on the sum of TEN, CRIP and FEAR) reflects a lack of difference between our three samples. Only the difference between the normal and delinquent boys approaches significance. ($X^2 = 3.39, .1 > p > .05$ for 1 d.f.)

A result which is difficult to explain in Wagner's data should also be mentioned here, namely, that his high school students have the same median MAL score (together with three other normal groups) as mental retardates and depressives. When one considers the sort of "behavioural tendencies" found in the depressive reactions referred to by Wagner (p. 18) the lack of differentiation between groups of the MAL score is considered questionable.

8. DES and FAIL were the remaining scoring categories which showed significant differences. DES ($X^2 = 18.6, p < .001$ for 1 d.f.) was highly significant. This high value could be attributed

to two variables operating in the delinquent groups. Firstly, a small number in the delinquent group were of well below average intelligence, resulting in their producing unelaborated DES responses. Other delinquents were highly defensive, lacking in spontaneity and, as a consequence, produced a limited number of responses in an endeavour to prevent themselves from "giving anything away."

Similarly the significant number of FAIL responses ($X^2 = 10.52, p < .01$) given by the delinquent boys showed their lack of cooperation, negativism and defensive wish to opt out of the testing by refusing to give responses.

9. No BIZ scores were obtained in the delinquent groups and only one questionable one in the normals.

Apart from AOR (see below) none of the summarizing categories (INT, ENV, WITH and MAL) as a whole showed significant differences between normal and delinquent groups.

Response Total (R) Significant differences existed in the total RESPONSE category ($X^2 = 11.42, p < .01, 3$ d.f.) where, as shown in Table 2, the delinquent group produced both a significantly greater number of high scores, (13+), and a significant number of lower (<9) responses while being under-represented in the range 10-12.

Table 2
Response Total

Responses	Delinquent	Normal
18+	16	16
13-17	11	27
10-12	15	67
Less than 9	<u>10</u>	<u>4</u>
	52	114

Again, the presence of more delinquent boys giving nine or fewer responses (which must be associated with the greater number of FAILS) can be attributed to either defensiveness or negativism on the one hand and also to the presence of several dull, unproductive

Table 3

Relationship between AOR of delinquent v normal groups.

	$AFF+DEP+COM \geq DIR+AGG$	$AFF+DEP+COM < DIR+AGG$	TOTAL
Delinquent	3	49	52
Normals	31	83	114
	<hr/> 34	<hr/> 132	<hr/> 166

$$X^2=10.11 \text{ } p < .01$$

subjects. The small group of delinquents scoring very highly were found to be of a more neurotic, obsessional nature, and their over-productivity was indicative of their resorting to compulsive behaviour as a defense against their feelings of anxiety and insecurity.

Acting Out Ratio (AOR). The statistical comparisons made are set out in Table 3.

The comparison was made between the sum of the AFF, DEP, COM, scores which were greater than or equal to the sum of the DIR and AGG, and the AFF, DEP, COM totals which were less than the sum of DIR and AGG. The significant X^2 upholds the hypothesis that delinquent boys produce more unbalanced AORs reflecting a tendency toward more aggressive behaviour, which is consistent with the behavioural characteristics of the populations concerned.

According to Wagner, low AIRTs are associated with antisocial personalities. A comparison between the AIRT scores of the normal and delinquent groups yielded non-significant $X^2 (X^2 + .2)$.

No statistical comparisons were made between the delinquent girls and the two boy groups, as it was felt that such comparisons would be meaningful only between same sex groups. So far, no studies have been done on the degree of variability on Hand Test scoring categories due to sex differences, though Wagner (1965) stated that he had informally noted some sex differences on the test.

Problems In Scoring And Use

ACT or ACQ. The authors came to the opinion on the basis of experience that the psychological meaningfulness of scoring this distinction was largely arbitrary. They now place little confidence in the assumed significance of the ACQ scores.

The authors found difficulties consistently associated with the distinction to be made between DIR or ACT or COM. This occurred particularly in regard to Card III "pointing" responses. When was a "pointing" response an ACT, or a DIR, or a COM? Examination of the Manual's (Wagner, 1962) scored protocols were of little help in deciding this issue, as inconsistencies in scoring appeared to be present, particularly in ACT/DIR Case 13 p.42, Case 16 p.43, Case 29 p.53, Case 33 p.55, Case 36 p.57, and Case 39 p.59. While the authors of the test have suggested that the interposition of "or" between responses makes the preceding and following comments two scores, this was felt to be not psychologically meaningful in the very common situation where a "pointing" response is given and, when queried, the subject says "Pointing at someone or something". In such cases there is an absolute minimum of investment in the "someone" response and the authors suspect that such responses do not psychologically mean the same as a well differentiated "Pointing which way to go". The greatest weakness of the ACT scoring for any pointing responses is that one one ever points to either an

object or a person if they are by themselves. Pointing is always a social act whether the other person is explicitly verbalised as being present or not. It follows that almost all "pointing" responses should be scored DIR or COM.

Cases of multiple answers such as "holding a pen or pencil or brush" where the objects' names are very similar in shape and function are also felt to be poorly scored by counting these as three responses. The Manual here also appears inconsistent.

The above scoring problems accounted for the greater part of the difficulties with reliability found between the scorers over the protocols. The percentage agreement for the 114 normal cases was 73% which is slightly lower than the figures quoted by Wagner (80%, 78%, 83%). While this may be regarded as satisfactory one would expect on this basis to incorrectly score about 3 responses in a protocol of 12. The Hand Test is a useful, quick projective test, particularly with delinquents, but needs to be interpreted with caution and should preferably be used as one of a battery of psychological tests.

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Prediction of Recidivism among Juvenile Delinquents With the Hand Test

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Summary: In a preliminary investigation of the predictive validity of the Hand Test, the AOS significantly differentiated delinquent recidivists from non-recidivists, correctly categorizing 66 per cent of the Ss. The AGG score also significantly differentiated the two groups.

In dealing with a juvenile delinquent population, the psychological differentiation between one-time offenders and recidivists has important practical implications for correctional workers. The identification of characteristic recidivism traits would make possible more constructive use of specialized treatment facilities by concentrating on high-risk youths. Also, the determination of factors relating to recidivism may be useful for preventive programs.

The problem of recidivism, as a social and diagnostic concern, is evidenced by the fact that various studies have estimated juvenile recidivism rates to range from 43 to 73 per cent (Arbuckle [&] Litwack, 1960). Furthermore, local statistics compiled in 1964 at the Summit County Juvenile Court at Akron, Ohio revealed that a core group of 37 per cent of all first admissions accounted for 80 per cent of total admissions. Yet, despite its importance, a review of the literature reveals a paucity of studies in the area of recidivism. Several studies, particularly those dealing with adult populations, have investigated the classically assumed causal relationship between "intelligence and criminality" (Erikson, 1928-29; Frank, 1931; Glueck & Glueck, 1930; Hartman, 1940; Lane & Witty, 1935; Mann & Mann, 1939; Murchison, 1926; Sutherland, 1931). The investigations have generally yielded negative results and conflicting generalizations. The now prevalent framework of multi-factor theoretical approaches. Research on juvenile delinquent recidivists has relied to a great extent upon case history

attempts to isolate socio-economic correlates (Wattenberg, 1953, 1956; Wattenberg & Quiroz, 1954; Wattenberg & Saunders, 1955; Weeks, 1943). These findings are also inconclusive, and their usefulness is restricted to low actuarial-type predictions.

Several studies (e.g., the Gluecks' *Unraveling Juvenile Delinquency*, 1950) have applied "experience table" methodologies in the study of juvenile delinquency. This type of research has been concerned with differentiating normal from delinquent children rather than predicting recidivism from within a delinquent population.

The MMPI has predominated among attempts at psychological measurement of recidivism. Inventory recidivism scales (Clark, 1948, 1953; Freeman & Mason, 1952) and a parole violation scale (Panton, 1962) have been constructed and cross-validated with adult samples rather than juvenile delinquents. These efforts have generally provided insignificant results, and in most cases were validated on a concurrent basis.

In the area of juvenile recidivism, the literature is strikingly void of predictive studies utilizing personality tests. Monachesi and Green (1966) report a longitudinal investigation with the MMPI in progress, and Jenkins and Blodgett's (1960) study using the Miale-Holsopple Sentence Completion Test appears to be the only projective test investigation thus far performed. Nevertheless, Monachesi (1950) advocates recidivist prediction through personality testing by asserting that "... personality manifestations of deviancy are relatively stable and en-

during" (p. 269). Abrahamsen's (1960) distinction between recidivists and non-recidivists in terms of quantitative differences in personality make-up further suggests the possibility of predicting recidivism with psychological tests.

The Hand Test seemed potentially suitable for differential prediction within a delinquent population in that it purports to measure "prototypal action tendencies . . . crucial for interacting with and relating to the external world" (Wagner, 1962, p. 1). The Acting-Out Score (AOS) and the Aggression Score (AGG) seemed specifically relevant for the prediction of recidivism. The AOS variable has, in fact, received concurrent validation with respect to the identification of assaultive and aggressive behavior (Wagner & Hawkins, 1964; Wagner & Medvedeff, 1963). Unfortunately, the predictive validity of the Hand Test has yet to be demonstrated (Shaw & Linden, 1964), and it was with this purpose in mind that the present study was initiated.

Procedure

In order to determine a temporal criterion for recidivism, a statistical analysis was performed on all 1963 first offenders referred to the Intake Department of the Juvenile Court Center, Akron, Ohio. The files for that year totaled 381 first referrals whose offense history later revealed subsequent referrals. For each individual case, the following information was coded upon index cards: birthdate, sex, race, date of intake for the first offense, and referral dates for subsequent offenses. Temporal intervals (to the nearest month) between offenses were derived and transformed into a frequency distribution. Cumulative percentages yielded a convenient, compromise cut-off point at the 23-month interval, within which time 91.6 per cent of the repeaters would be referred on a second offense. The 381 cases constituted a 38.5 per cent recidivism rate, a figure comparable to both empirical and estimated national rates. After the establishment of this "local" criterion for recidivism (i.e., commission or non-commis-

sion of a second offense within 23 months of the first offense), 25 recidivist (R) and 25 non-recidivist (NR) Hand Test protocols were drawn from the 1962-64 files of Psychological Services of the Summit County Juvenile Court. Tests had been administered as an integral part of the "intake referral" battery, and were administered and scored by the senior author with strict adherence to the Hand Test manual (Wagner, 1962).

Subjects were individually matched with respect to age, intelligence, sex, race, and nature of first offense. The mean ages for R and NR groups were both 15.0, with most cases clustering in the 14-16 year age range. Since IQ's were derived from a variety of tests (WAIS, WISC, Stanford-Binet, Otis, California Test of Mental Maturity), all corresponding percentiles were transformed to normalized *T* scores. The mean *T* score for the R group was 48.6, while the NR group evidenced a mean *T* score of 47.1. There was no significant difference in the means of the IQ's ($t = .512$). There were 13 males and 12 females in both groups. Twenty caucasians and 5 negroes comprised the R group as compared to 16 caucasians and 9 negroes in the NR group. These differences were non-significant ($X^2 = .89$). An attempt was made to control for the nature of first offense by broadly categorizing the Ss' labeled offenses into the tripartite crime classification proposed by the FBI (*Uniform Crime Reports*, 1962). The majority of offenses clustered in the class "Crimes Suggesting Personal Disorganization" (e.g., truancy, incorrigibility, runaway). A 2×3 chi-square test in terms of offense classifications was non-significant ($X^2 = .40$). The mean number of referrals for the R group was 3.28.

It was hypothesized that the AOS, which represents the sum of affectional, communicative, and dependent interpersonal responses subtracted algebraically from the sum of directive and aggressive interpersonal responses would be significantly higher for the R group than the NR group. Since the AGG score represents a basic, and perhaps crucial,

component of the AOS insofar as aggressive proclivities are concerned, it was also hypothesized that the AGG score would significantly differentiate the R and NR groups. Past findings with adults (Bricklin, Piotrowski, & Wagner, 1962) seemed to warrant specific predictions; thus, the hypotheses were one-tailed.

Results

A correlated *t* test for mean differences in the AOS was significant beyond the .05 level of confidence ($t=1.716$; $df=24$). An AOS cut-off of +1 correctly classified 33 of the 50 Ss or 66 per cent. The AGG score also yielded significant differences between the groups as indicated by the Wilcoxon Matched-Pairs Signed-Ranks Test ($p>.05$). A maximal, critical AGG score of +2 resulted in the correct identification of 34 of the 50 Ss or 68 per cent.

Discussion

The results of this pilot investigation suggest the feasibility of predicting juvenile recidivism on the basis of quantitative, projective test indices. Two Hand Test variables, the AOS and the AGG score, have adequately differentiated recidivist and non-recidivist groups according to *a priori* assumptions. Interpretively, the findings lend support to the authors' hypothesis that the chronic or habitual offender has incorporated an aggressive and assertive frame of reference in his dealings with the world.

Interestingly enough, the hypothesized predictive variables proved more efficient in correctly classifying the NR Ss than the R Ss. Eighty per cent of the NR's evidenced AOS's of 0 or less, while 72 per cent yielded AGG scores of +1 or less. Further perusal of the R protocols showed that marked psychopathology (PATH score ≥ 4) was exhibited by 7 of the 12 recidivists whose AOS's were 0 or less. Such a severity of manifest pathology may well have masked the antisocial proclivities in these Ss. Additional inspection revealed the existence of either a negative test-taking attitude or an inability to respond appropriately for emotional reasons which may have re-

duced the number of overtly expressed AGG responses in this group (8 of these R Ss evidenced one or more FAIL responses). Further research should therefore take into account not only the extent of aggressive proclivities but also the intensity of psychopathology which may generally depress action tendencies or put them beyond conscious control. These tendencies may, however, express themselves sporadically and intermittently under conditions of lowered conscious control. The cut-off points should therefore be used with caution, especially when dealing with protocols where marked psychopathology is present. There were more false negatives than false positives which suggests that, while a non-recidivist will tend to give a lesser number of antisocial interpersonal responses, the converse is not necessarily true for the recidivist. Prediction for the individual case is therefore hazardous and should be undertaken only in the context of the entire protocol and, of course, all the other information at the disposal of the diagnostician.

The present findings indicate that prediction of delinquent recidivism above base rate expectations can be accomplished with psychological testing. On the basis of these preliminary findings, it would seem that juvenile recidivists have at least one personality trait in common which predisposes them toward repeated offenses—namely, a basic aggressive orientation toward the world.

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Hostility on the TAT as a Function of Defensive Inhibition and Stimulus Situation

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Summary: It was hypothesized that there would be significant differences in the aggressive imagery of inhibited and uninhibited subjects when TAT cards or instructions strongly suggested an aggressive response but not when the experimental conditions did not suggest hostile themes. This prediction was verified on a sample of women but no support was found in a sample of men. The findings were related to other studies in the literature and directions for further research suggested.

In recent years it has become increasingly apparent that to accurately interpret a TAT story, one must consider not only the content of the response, but also the stimulus characteristics of the card which elicited it. In interpreting aggressive imagery, Saltz and Epstein (1963) have demonstrated that the aggressiveness of responses to pictures of low relevance to aggression provided a better measure of aggressive drive than did the responses to pictures of high relevance.

But what is the meaning of aggressive imagery to pictures of high relevance? Murstein (1965, p. 47) has vigorously maintained that it is not aggressive drive which determines hostile responses to such cards, for, "When . . . a card is highly unambiguous with regard to hostility, it compels a hostile response not through projection of personal perceptions or attitudes but rather because of respect for the reality considerations of what is obviously there in the picture".

Saltz and Epstein (1963) hypothesized that hostile responses to pictures of high relevance to aggression are primarily determined by guilt. This formulation was similar to Kagan's hypothesis that, ". . . failure to tell aggressive stories to stimuli that regularly elicit such

themes may be regarded as a measure of the amount of anxiety associated with the expression of aggressive thoughts (1956, p. 392)." In more general terms, these investigators are thus proposing that it is inhibitory forces which produce individual differences in aggressive imagery when the stimuli strongly suggest a hostile story.

Saltz and Epstein's data only partially supported this notion. The purpose of the present investigation was to further investigate this hypothesis by selecting subjects high and low in inhibition level and administering group TATs under conditions which differed in the degree to which they called for aggressive stories. It was hypothesized that the inhibited and uninhibited subjects would differ in the amount of aggressive imagery which they produced under the conditions which suggested hostile themes, but would not differ under the neutral conditions.

Subjects and Procedures

The Byrne Repression-Sensitization (*R-S*) scale for the MMPI was selected as the independent measure of inhibition. Individuals scoring at the low (repression) end of this scale have been found to manifest less anxiety, to be less able to perceive threatening words in an ambiguous perceptual situation, to seek medical help less often, to respond to sexual arousal with feelings of disgust, to manifest rigid overcontrol more often and to be generally more self-controlled, eager to make a good impres-

¹The writer would like to express his gratitude to Robert K. Young for his assistance on the design and analysis of the experiment, to Alexis K. Andrews who scored the TAT protocols, and to Gardner Lindzey and Donn Byrne for their critical reading of an earlier draft of this report.

sion and motivated to achieve through conformity (Byrne and Sheffield, 1965; Byrne, Golightly & Sheffield, 1965; Byrne, Steinberg & Schwartz, in press). Lazarus and Alfert (1964) have also found that in response to a stressful movie, low scorers on *R-S* manifested their distress autonomically rather than verbally, unlike high scorers. These data suggested that the *R-S* scale should be a good measure of generalized emotional inhibition, with low scorers being more inhibited than high scorers.

The MMPI was administered to 100 men and 126 women volunteers from a 482-student introductory psychology class and the protocols were scored on the *R-S* scale. On a later occasion a group TAT was administered to the class as a whole. The procedures for the administration of the TAT were modelled after those used by Murstein, 1965. In this study Murstein used 9 TAT cards: 7GF, 13MF, 10, 6GF, 13B, 18BM, 9GF, 13G and 3GF. Of these cards 13MF, 18BM and 3GF were selected because in previous research they had been rated as highly aggressive, 7GF, 6GF and 9GF, because they had had medium ratings and 10, 13B, and 13G because they had been rated as having little aggressive stimulus pull. The same cards were used in the present study despite the fact that Murstein (1965) had found that while the "high pull" set of cards did elicit much more aggressive imagery than the other two sets, the "medium pull" set yielded only slightly more than the "low pull" set.

Murstein (1965) also investigated the effects of instructional set on hostile imagery by using neutral directions for some subjects and instructions to "look your best" (which were designed to inhibit hostile expression) for the remaining subjects. He found no differences as a function of these sets but speculated (Murstein, 1963) that "more trying" sets such as "tell as hostile . . . a story as you can" might have a more significant effect.

In the present study two sets of instructions were also used, a neutral set identical to that used by Murstein

(1965), and a set of instructions to tell the most hostile and aggressive story possible. The primary purpose of this was to create situations which clearly called for aggressive stories to test the basic hypothesis that under such conditions the inhibited subjects would tell less aggressive stories. A secondary goal was to follow up Murstein's (1963) suggestion that the effects of stronger sets be investigated.

Two sets of booklets were prepared in which the students were to write their stories. Half the students received booklets with face sheets bearing Murstein's neutral instructions:

The purpose of this study is to obtain norms for college students taking the TAT. Your serious cooperation is necessary if the results are to be meaningful.

You are going to see a series of pictures and your task is to tell a story that is suggested to you by each picture. Try to imagine what is going on in each picture. Then tell what the situation is, what led up to the situation, what the people are thinking and feeling, what they will do. In other words, write as complete a story as you can—a story with plot and characters.

You will have 20 seconds to look at a picture and then 4 minutes to write your story about it. Write your first impression and work rapidly. I will keep time and tell you when it is time to finish your story and to get ready for the next picture.

There are no right or wrong stories or kinds of pictures, so you may feel free to write whatever story is suggested to you when you look at a picture. Spelling, punctuation, and grammar are not important. What is important is to write out as fully and as quickly as possible the story that comes into your mind as you imagine what is going on in each picture.

Notice that there is one page for writing each story. If you need more space for writing any story, use the reverse side of the paper.

Each of the story pages had the following four questions followed by a 2-inch space in which the student could write his response:

1. Tell the story that is suggested by this picture. Who is in the picture? Give approximate ages. If more than one person is seen, give relationship of characters to each other.

2. What is going on?

3. Explain why this is happening.

4. How does the story end?

The other half of the class received the booklets designed to encourage the student to write hostile stories. The first paragraph of the neutral instructions was replaced with one that read:

The purpose of this study is to obtain norms for college students taking the TAT under various conditions. In this experiment you are to write the most hostile, aggressive or violent story that each picture suggests to you.

The remainder of the instructions was unchanged. However the first question on each story sheet was amended to read:

1. Tell the most hostile and aggressive story that may be suggested by this picture. Who is in the picture? Give approximate ages. If more than one person is seen, give relationship of characters to each other.

The resulting TATs were then scored on the Hafner and Kaplan (1960) TAT hostility scale.

When the 210 students for whom both *R-S* and TAT data were available were divided by sex and instructional set it was found that there were 45 men and 59 women who had taken the TAT under neutral instructions, and 42 men and 64 women who had taken it under hostile instructions.

Since the *R-S* distributions showed more variability and more extreme scores for the women than the men, it was decided to conduct separate analyses for each sex? For the women it

²Separate analyses were further indicated by Lindzey and Silverman's finding of a number of significant sex differences between the responses of men and women to the group TAT, "... suggesting that male and female TAT protocols should be combined for analysis only with great caution," (1959, p. 319).

was found that the 10 highest and the 10 lowest scorers in the hostile and neutral conditions respectively were perfectly matched for the mean *R-S* score so that no extreme cases had to be discarded. The *R-S* scores of the men in the hostile condition were more restricted than those in the neutral condition, however. In order to match the mean *R-S* scores of the men in the two conditions it was necessary to exclude a number of the high and low scoring men in the neutral condition (See Table 1).

Within each analysis, therefore, the subjects entering into each main effect and interaction were thus matched on all other variables. However, it can be seen from Table 1 that the female subjects occupied more extreme positions on the repression-sensitization continuum than did the men.

The following predictions were made:

1. The less inhibited subjects would have higher hostility scores than the more inhibited subjects.

2. Instructions to give hostile stories would result in higher hostility scores than would neutral instructions.

3. The higher the aggressive stimulus pull of the cards, the higher the hostility scores which would be found, as was the case in Murstein's (1965) study.

4. The hostility scores of the inhibited and uninhibited subjects would differ more when the situation clearly called for a hostile response, (i.e. under neutral instructions with high card pull and under hostile instructions with all cards) than in those situations which did not demand an aggressive response, (i.e. neutral instructions with low or medium card pull).

Results

The means and significance levels associated with the main effects of inhibition level, instructional set and card pull for the women and the men are presented in Table 2. From this table it can be seen that the first three predictions were confirmed for the women, but not for the men for whom no differences associated with inhibition level were found.

Table 1

Repression-Sensitization Scores of the Groups

Analysis	Instructional Set	Uninhibited (High R-S) Groups N = 10/cell			Inhibited (Low R-S) Groups N = 10/cell		
		\bar{x}	Range	Proportion of Highest Scorers	\bar{x}	Range	Proportion of Lowest Scorers
Women N = 40	Hostile N = 20	74.4	65-87	All of Top 10	14.3	4-23	All of Low 10
	Neutral N = 20	74.4	64-101	All of Top 10	14.3	4-21	All of Low 10
Men N = 40	Hostile N = 20	67.9	55-85	All of Top 10	20.6	8-25	All of Low 10
	Neutral N = 20	68.1	59-92	10 of Top 23	20.4	8-31	10 of Low 16

Table 2

Main Effect Means and Significance Levels for Men and Women

Group		Inhibition Level			Instructions			Card Pull			
		High	Low	<i>p</i>	Hostile	Neutral	<i>p</i>	High	Medium	Low	<i>p</i>
Women	\bar{x}	6.33	4.83	.025	6.77	4.40	.001	7.22	5.30	4.22	.001
Men	\bar{x}	6.06	5.62	NS	7.50	4.18	.001	7.55	5.70	4.27	.001

It seemed likely that the failure to find significant differences as a function of inhibition level for the men was a result of the fact that the men had had a more restricted range of *R-S* scores. Therefore a second analysis was undertaken using only men who had *R-S* scores in the same range as their female counterparts with 6 men in each cell. Since this analysis showed no noteworthy trend for uninhibited men to have

higher scores than inhibited men, it was concluded that this was a genuine sex difference.

The major hypothesis was that there would be substantial differences between the hostility scores of the uninhibited and inhibited subjects when the experimental conditions clearly called for an aggressive response, but minimal differences when they did not. The triple interaction of Inhibition Level X Set X Cards was the test of this hypothesis.³ This interaction was significant for the women but not for the men (See Table 3). The analysis of the data for the smaller sample of men with *R-S* scores in the same range as those of the

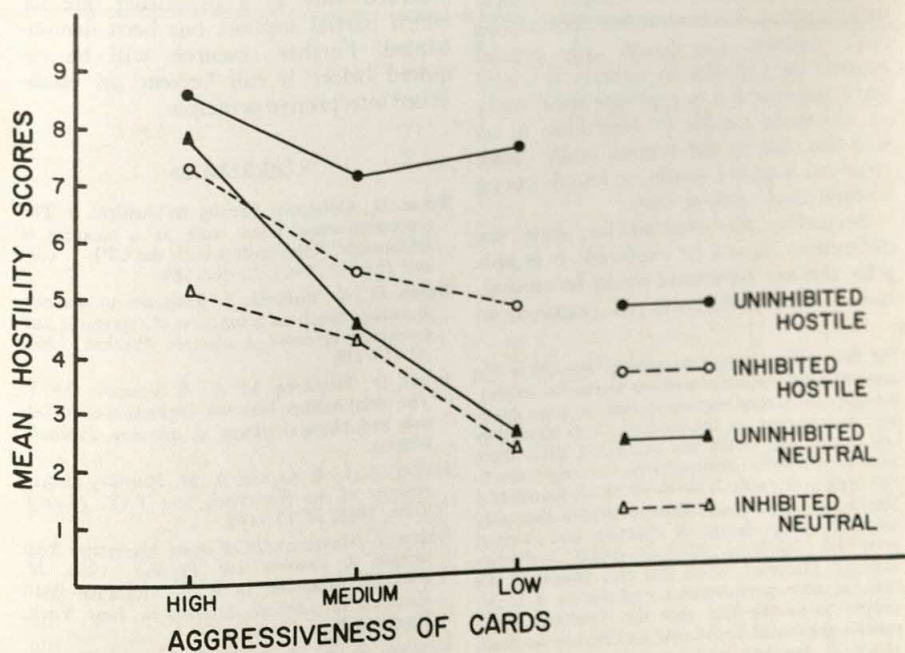
³The interactions of Inhibition X Set or Inhibition X Cards could not test this hypothesis adequately since each involved the comparison of conditions which called for hostility with a mixture of conditions, some of which called for hostile responses and some of which did not.

Table 3

TAT Hostility as a Function of Inhibition Level,
Instructions and Card Pull for Women and Men

Sex	Inhibition Level	Set	Aggressiveness of Cards		
			High	Medium	Low
Women	Uninhibited	Hostile	8.6	7.1	7.5
	Inhibited	Hostile	7.3	5.4	4.7
	Uninhibited	Neutral	7.8	4.5	2.5
	Inhibited	Neutral	5.2	4.2	2.2
Interaction: $F = 3.27, p < .05$					
Men	Uninhibited	Hostile	8.1	7.5	6.3
	Inhibited	Hostile	8.7	7.6	7.6
	Uninhibited	Neutral	7.5	4.3	2.7
	Inhibited	Neutral	6.2	3.7	0.7
Interaction: $F = 1.43, N.S.$					

Fig. 1. Interaction of Inhibition Level X Instructions X Cards for Women Ss.



women also showed no significant triple interaction.

The significant triple interaction which was obtained for the women is illustrated in Figure 1. It can be seen that the inhibited women had substantially lower hostility scores than the uninhibited women in the conditions which were structured to elicit aggression (high pull cards under neutral instructions and all cards under hostile instructions) but that there were no noteworthy differences between the groups in the unstructured conditions (medium and low pull cards under neutral instructions).⁴

Discussion

The present study thus found partial support for the hypothesis that variations in aggressive imagery in response to stimulus conditions likely to elicit aggression reflect differences in inhibition level.

When the present findings are compared with those of other studies, two directions for further research seem to be indicated. Saltz and Epstein (1963) using a group TAT administration among male subjects also found only partial support for a similar hypothesis. It would seem appropriate to replicate their study on a female sample to determine if, as was the case in the present study, more clear-cut support would be found among women than among men.

Secondly, the reasons for such sex differences should be explored. It is possible the sex difference could be an artifact of sex differences in response to

group TATs such as were found by Lindzey and Silverman (1959). It is noteworthy that both the present study and that of Saltz and Epstein used a group administration. On the other hand, Kagan (1956) used an individual administration in his study of young boys and obtained data consistent with the notion that aggressive cards detect differences in inhibition level. Possibly for male subjects an individual administration arouses inhibitions against the expression of aggressive imagery which are dormant in the relative anonymity of a large group. On the other hand, women's inhibitions may be less dependent on the mode of administration. A replication of the present study using individually administered TATs would aid in evaluating this hypothesis.

Until such further work is carried out, the hypothesis that inhibition level, guilt or anxiety is the primary determinant of individual differences in aggressive imagery in response to stimuli which strongly suggest hostile themes must be regarded only as a promising one for which partial support has been demonstrated. Further research will be required before it can become an established interpretive principle.

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⁴At first glance it was surprising that under the neutral conditions the hostility scores for inhibited and uninhibited women showed no more diversity in response to the medium cards than they did in response to the low pull cards, while there was considerable differentiation in responses to the high pull cards. This could be attributed to a threshold phenomenon since it seemed that only when a certain degree of structure was attained were the inhibited subject's denial tendencies aroused. However, while this may indeed be the case, a more parsimonious explanation is to attribute it to the fact that the "medium" pull cards were found by Murstein (1965) to be much closer to the low pull cards in the aggressive imagery which they elicited than to the high pull cards.

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A Contribution Toward the Validation of the FIRO-B Questionnaire

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Summary: The FIRO-B Questionnaire is a pencil and paper test designed to measure expressed and wanted aspects of the dimensions of inclusion, control, and affection. 25 Ss took the test and also rated themselves on these dimensions. Rank order correlations were calculated between the six FIRO-B scores and the corresponding self-ratings. Five of the six resulting coefficients were significant at or beyond the .05 level. The results were discussed in terms of problems of construct validity and were viewed as contributing toward the validation of the FIRO-B.

The FIRO-B Questionnaire is a pencil and paper test designed to measure expressed and wanted aspects of the dimensions of inclusion, control, and affection. Its name stands for Fundamental Interpersonal Relations Orientation-Behavior. The test's author, William Schutz, has developed a theory of personal interactions which suggests that the FIRO's three dimensions are the basic ones of human interaction (Schutz, 1958). A high score on the expressed aspect of inclusion should come from a person who very much likes to include others in his activities; a high wanted inclusion score should characterize a person who wants to be included in the activities of others. High expressed control represents the tendency to try to control others, while high wanted control stands for the wish to be controlled. On the third dimension, affection, a high expressed score should come from an individual who typically initiates close, personal interaction with others, while a high wanted score stands for the wish to have others initiate such interactions. The FIRO-B has separate items for each of the six categories, so there is no necessary statistical co-variation among them.

Although the basic dimensions seem fairly simple in outline, the test is by no means a simple self-report instrument on them. The present writer has found that normal Ss who have taken the FIRO-B are aware that it has to do with interpersonal relationships, but they cannot identify the particular areas in the terms which Schutz (1958) used in

designing the test. The FIRO-B dimensions are hypothetical constructs—traits which are assumed to be important personality variables. Its validation is, then, a problem in construct validity (American Psychological Association, 1954; Cronbach & Meehl, 1955). There are no absolute criteria against which the test scores can be validated. Each demonstration of the test's ability to predict trait relevant behavior and each demonstrated correlation with measures of similar traits add to its presumptive validity. For example, a measure of interpersonal compatibility derived from the FIRO-B dimensions of inclusion, control, and affection has shown to be predictive of productivity in small groups (Moos & Speisman, 1962), and it even seems to be a relevant variable to patient-therapist interaction in psychotherapy (Sapolsky, 1965).

The approach toward validation in the present study is by way of self-ratings. Allport, among others, has suggested that normal Ss should be able to tell us valid things about their personality (Allport, 1964). Kramer (1967) used Ss self-ratings of extraversion as a way of contributing toward the validation of the factorially derived extraversion test by Eysenck (Eysenck & Eysenck, 1963). This approach assumes that if the FIRO-B does measure certain personality dimensions and if Schutz has done a reasonable job of labeling them, Ss should be able to predict their FIRO-B scores with some accuracy. Perfect correlations between scores and self-ratings would, of course, be neither expected nor de-

sirable. They would mean that every *S* had exactly the same notions about inclusion, control, and affection as did Schutz, plus perfect insight—and the test would then be unnecessary.

METHOD

The 25 *Ss* were all students enrolled in an evening school course in psychology. No previous discussion of the FIRO-B or any similar measures had taken place in the class. The evening on which the FIRO-B was given, each *S* took the test at the beginning of the class session. *Ss* were then asked for their thoughts about what the test measured. A general notion of "something to do with how you are with people" arose, but nothing more specific. *E* then gave a short lecture on the FIRO-B, describing the dimensions it was designed to measure. Nothing was said, however, about what particular sections or questions related to scores on specific dimensions, nor was any information given about typical scores for various types of *Ss*. Following the lecture on the test and the theory related to it, *Ss* were asked to rate

themselves on the expressed and wanted aspects of inclusion, control, and affection. Having taken the test may, of course, have had some effect on the self-ratings. This seemed, however, a considerably more desirable risk than having the self-ratings done first, since prior labeling of the dimensions would almost certainly have helped *Ss* to identify the aim of many specific test items.

RESULTS

Rank-order correlations were calculated for each of the six categories, between the obtained FIRO-B score and the *S's* self-rating. These results are given in Table 1.

As can be seen there, five of the six correlations reach the usually accepted level for statistical significance, while the sixth comes close to it. The three basic FIRO-B dimensions of inclusion, control, and affection clearly share significant common variance with the interpersonal behaviors which normal *Ss* can perceive in themselves. These results do, therefore, contribute toward the construct validation of the test.

Table 1
Correlations Between FIRO-B Scores and Self-Ratings

Category	rho	probability
Inclusion—expressed	.33	>.05
Inclusion—wanted	.83	<.01
Control—expressed	.49	<.01
Control—wanted	.39	<.05 >.01
Affection—expressed	.63	<.01
Affection—wanted	.48	<.01

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The KTSA and Emotional Pathology In Children

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Summary: The ability of the nine KTSA symbolization scores to differentiate between normal and emotionally disturbed children was explored. Significant results were obtained for two scores (B and X). Contrary to the suggestions of the literature, the D score failed to discriminate between the groups. The results for the normal group were in general agreement with Abidin's (1966) norms. These results suggest that two of the KTSA symbolization scores can possibly be used independently for diagnostic purposes.

This study was designed to ascertain whether normal and emotionally disturbed children produce significantly different scores for symbolization on the Kahn Test of Symbol Arrangement (KTSA). The test requires that the subject make 24 verbal responses to 15 plastic objects which he arranges 5 times on a segmented felt strip. Verbal responses are scored into 9 symbolization categories: Bizarre responses (scored A); I don't know (B); repeated responses (C); naming or stating a function of the object (D); responses based on shape, material or size (E); responses based on color (F); concrete associations involving the physical characteristics of the object (X); tangible abstractions, not involving the physical characteristics of the test object per se (Y); intangible abstractions, complete freedom from shape and material substance (Z).

To date, only a limited amount of research has been conducted on the test's usefulness with children. Kahn (1957) reported on an exploratory study of a mixed age group, ages 6 through 14, which suggested differential responses to the test by normal and emotionally disturbed children, the latter seeming to produce more D re-

sponses and fewer Z responses than normals. Evans (1958) reporting on the KTSA performance of delinquent adolescents stated: "Our delinquent sample was characterized by . . . low levels of symbolization (A, B, D)," (pg. 59). In a study of high school, institutionally-raised and home-raised children, Bates (1960) reports significantly fewer F responses and more Z responses for institutionally-raised children. Significant sex differences were found with boys producing more B responses and girls producing more C responses. No sex differences were reported for those scores most directly related to the abstraction continuum, namely, D, X, Y, and Z scores. Kenny (1962), reporting on a study of early adolescents, noted that emotionally disturbed children produced more D and fewer Z responses. Sex differences were suggested by his data, with boys producing more D and B responses and girls tending to produce more C and Z responses. No statistical levels of significance were specified by Kenny for these observations.

METHOD

Subjects were child dependents of Air Force personnel stationed in San Antonio, Texas. The group was mixed as to the rank and educational level of the parents. Kenny (1962) found that the military rank of the father had no significant effect on the level of adjustment

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of children, hence, father's rank was not controlled in this study. The selection criteria used were: I.Q. scores within the range of 95 to 105; age limits 7 to 10 years of age; no medical evidence of brain damage; the exclusion of all children with gross physical handicaps. The control group was selected by means of a random stratified sample from two schools. One was exclusively for military dependents; the other had a large majority of children of military personnel. No effort was made to insure that this group was well adjusted other than the fact that none of the children were presently or historically considered behavior problems. The control group consisted of subjects who were evenly distributed by sex and age. The experimental group of 43 children was comprised of children evaluated by the Psychiatry Service of Wilford Hall

USAF Hospital. In each case a diagnosis of emotional disturbance was specified, but in no case was the child considered psychotic. The modal diagnosis which would cover 90 per cent of the cases was adjustment reaction of childhood.

RESULTS

A two-way analysis of variance of group and age factors was performed on the nine KTSA symbolization scores. No interactions (group age) were found to be significant at the .05 level. Significant group effects were found for B, $F = 7.70$, ($p < .01$) and X, $F = 6.72$, ($p < .05$) scores, while age effects were significant for A, $F = 5.39$, Y, $F = 8.36$, and Z, $F = 8.39$, at the .05 level or lower. The means for each age level and for both groups may be found in Table 1.

Table 1

Means and Standard Deviations for Control and Disturbed Groups at Each Age Level

Scoring Category	Age Levels	Groups		Disturbed		Norms ^a	
		Control					
		\bar{x}	S. D.	\bar{x}	S. D.	\bar{x}	S. D.
A	7-8	.87	1.27	1.38	1.55	.36	1.47
	9-10	.37	.99	.54	1.62	.42	2.67
B	7-8	2.71	2.13	3.54	2.40	3.00	2.20
	9-10	1.79	1.63	3.54	2.65	2.89	2.01
C	7-8	2.58	1.99	3.63	2.48	3.59	2.45
	9-10	3.37	2.46	3.63	1.99	2.59	2.24
D	7-8	2.16	1.60	3.00	3.25	2.83	2.59
	9-10	1.83	2.04	1.58	1.91	2.79	2.87
E	7-8	1.17	1.07	1.25	1.44	1.23	1.18
	9-10	1.33	1.52	1.59	1.55	1.73	1.31
F	7-8	1.16	1.50	1.42	1.32	.96	1.42
	9-10	1.42	1.66	1.25	1.36	1.30	1.59
X	7-8	9.08	3.67	6.13	3.54	7.34	1.11
	9-10	7.16	2.60	6.42	3.65	6.56	1.18
Y	7-8	4.49	3.18	3.88	2.42	4.55	2.38
	9-10	6.33	3.14	5.58	2.87	4.98	2.62
Z	7-8	.37	1.88	.46	1.13	.54	2.01
	9-10	.91	.64	1.46	1.37	1.35	1.55

^aAge Norms Reported by Abidin (1966).

DISCUSSION

The present findings suggest that only two of the nine KTSA symbolization scores, B (I don't know) and X (concrete associations involving the physical characteristics of the object) discriminate control from emotionally disturbed latency-aged children. The B score occurs under two major conditions, namely, the subject is either unable or unwilling, for whatever reason, to produce a response. Since intelligence was controlled, we must assume equal intellectual capacity in all groups. Hence, it would seem likely that the larger incidence of B responses among disturbed children is related to such factors as evasiveness, fear, and defiance. This interpretation is in line with our clinical experience to date. Considering the relative equality of the other score categories, and the mutual exclusive nature of the scoring system, the higher incidence of X responses among the normal group appears to be related to a greater willingness and ability to meet new and novel situations with an adaptive response.

The failure of the A (bizarre responses) and Z (intangible abstractions, complete freedom from shape and material substance) scores to discriminate between the controls and experimental group, at this age level, is not surprising in light of the comments of Abidin (1966). The scoring of these two categories are reported as being particularly difficult and interwoven, particularly when applied to young children. There is also the contaminating factor that normal latency-aged children, as reported by Piaget (1955) speak and think in a highly egocentric, personalized and, occasionally, autistic manner. Hence, the formal developmental characteristics of the experimental and control group probably have great overlap. The major unexpected finding of this study was the failure of the D (naming or stating a function) score to discriminate between the two groups. Both the literature (Kahn, 1957; Evans, 1958; Kenny, 1962) and personal communication with Dr. Kahn suggested that

emotionally disturbed children would produce significantly more D responses. One possible explanation for the failure of the D score to discriminate between the two groups may lie in the differences in the ages of the children studied by Kahn, and Kenny, and the present investigation. The concrete approach, suggested by the D response, is developmentally common in the seven-to ten-year old, according to Inhelder and Piaget (1958).

Although only two of the nine symbolization scores were successful in discriminating between the two groups, the results are encouraging for the use of the KTSA with children. It must be remembered that the differential called for in this study was a relatively subtle one, between groups which were not greatly dichotomous. The subjects in the control group were not screened for normalcy; the experimental group contained no psychotic children and very few seriously disturbed children.

An examination of the symbolization score Mean for the control group and the Means reported by Abidin (1966) reveals essential agreement (Table 2). The direction of change in the magnitude of the mean with age is the same for seven of the nine scoring categories, with the exceptions being the A and C (repeated responses) scores. The A-score discrepancy is understandable in light of the large variance found by Abidin for A scores. However, the C-score discrepancy appears unexplainable other than that it may be a random variation of some unknown experimental error. The data generated by this study and that reported by Abidin both support the contention that the KTSA does reflect increasing abstractive ability of children with age; hence, it may be of value in developmental studies of school age children.

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Marital Status and Figure Drawing Choice In Normal Young Adults

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The utility of figure drawing analysis as a projective technique in personality assessment and research is demonstrated by the observation that this method has been ranked as second only to the Rorschach test in frequency of use by American clinical psychologists (Sundberg, 1961). Most of the investigations of this method have focused upon dynamic interpretation of the protocol (Hammer, 1958; Machover, 1949; Swensen, 1957), while studies of the subject (*S*) who produced the drawing have tended to be concerned with such factors as the relationship between the sex of the *S* and the sex of the drawing (Gravitz, 1966; Holtzman, 1952), the effect of the age of the *S* upon figure choice (Butler & Marcuse, 1959; Gilbert & Hall, 1962; Gravitz, 1966), test-retest reliability of the drawing (Lehner & Gunderson, 1952), psychopathology (Hammer, 1954; Holtzberg & Wexler, 1950), and the effects of stress and anxiety (Handler & Reyher, 1964, 1965).

As a contribution to the further understanding of factors in human figure drawing, this present study was designed to investigate the relationship between the marital status of normal young men and women and the sex of their drawings.

Method

The figure drawings of 800 *Ss*, who were grouped as in Table 1 and who ranged in age inclusively from 20 - 30 years, were obtained at random from pre-existing files which contained several group-administered psychological assessment test protocols obtained during the course of pre-employment screening for emotional fitness. All of the *Ss* were candidates for a variety of jobs in an industrial organization, and no obvious signs of psychological disturbance had been observed during pre-test interviews.

The original design of this study had been planned to include for comparison a group of older adults in the 40 - 50 age range; however, a lengthy search of the files for such *Ss* was unproductive because of the unavailability of sufficient numbers of single persons even when the upper age limits were extended to 60.

Results

There was a significant difference between the total male and total female groups for the sex of the figure drawn, in that the former produced more same-sex drawings ($X^2 = 56.12$, $df = 1$, $p = .001$).

In comparing single to married individuals, regardless of gender, there was no significant difference in the sex of the drawings ($X^2 = .1689$, $df = 1$, $p = .80$).

While there was a slight tendency for married men to make more same-sex drawings than single men, this difference also was not significant ($X^2 = .2173$, $df = 1$, $p = .65$).

Likewise, the difference between single and married women was not significant, even though single females drew somewhat more same-sex figures ($X^2 = 1.604$, $df = 1$, $p = .20$).

Discussion

The present finding that the overall group of female *Ss* produced more opposite-sex figures than did the males is consistent with that reported elsewhere (Gravitz, 1966; Holtzman, 1952). The relatively large numbers of *Ss*, especially women, who drew opposite-sex figures points to the invalidity of Machover's (1949, p. 101) conclusion that "some degree of sexual inversion was contained in records of all individuals who drew the opposite sex . . .". While her comment may have reflected clinical patients

Table 1

Figure Drawing Choice of Each Subject Group

GROUP	N	Same-sex		Opposite-sex	
		N	(%)	N	(%)
Single Men	200	175	(87%)	25	(13%)
Married Men	200	178	(89%)	22	(11%)
Single Women	200	138	(69%)	62	(31%)
Married Women	200	126	(63%)	74	(37%)
Total Single	400	313	(78%)	87	(22%)
Total Married	400	304	(76%)	96	(24%)
Total Men	400	353	(88%)	47	(12%)
Total Women	400	264	(66%)	136	(34%)

who comprised her chief source of Ss, the present study indicated that her conclusion does not apply to normal young adults. Even in cases of sexual inversion, moreover, other research (Barker, Mathis, & Powers, 1953; Hammer, 1954) has found no significant difference between homophile and heterophile males in the sex of the first-drawn figure.

While this present investigation has demonstrated no significant difference between marital status and figure drawing choice in either young men or women, the relationship between figure drawings and psychosexuality of the Ss remains a promising area for continued study.

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A Normative Study of an Auditory Projective Technique

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Summary: The purpose of this study is to provide normative data for the sound effect sequences of the Braverman-Chevigny Auditory Projective Test. The test was administered to 149 college undergraduates in a group setting, who were asked to compose stories to the seven sound sequences. Stories were coded in terms of tone, outcome, number of characters, theme, and identification of "hero." The stories were predominantly negative in tone, with outcomes generally neutral or unsuccessful. Interscorer reliabilities were all significant beyond the .001 level.

Various rationales have been given for the development of auditory projective techniques. Bean (1965) feels there is abundant evidence that most of the population is "eye-minded," but that a large minority "have relatively clearer auditory experiences with a rich variety of accompanying fantasy, and could be labeled 'ear-minded' (Bean, 1965, p. 151)." It is largely for these "ear-minded" that Bean developed his Sound Apperception Test. Abramson (1963) justifies the use of auditory techniques on the grounds that they might result in responses which are less stimulus-bound than visual ones. He feels that the more constant cues and reality checks in vision provide less room for personalized expression than the less clearly structured world of audition.

The Braverman-Chevigny Auditory Projective Test (BC-APT) was developed jointly by Sydel Braverman, a clinical psychologist, and Hector Chevigny, a professional writer who had lost his sight. Its original aim was to provide a personality assessment technique for the visually handicapped. It was donated to the American Foundation for the Blind, which has prepared a provisional manual for it (American Foundation for the Blind, 1964). That manual notes that the BC-APT does have potential relevance for sighted subjects as well. The present study is concerned

with gathering normative data from sighted subjects.

The BC-APT stimulus materials are recorded on tape at 7.5 inches per second. The test consists of three sections, described in the manual:

Section 1:

"the artifact sequences,"

11 dialogues in an invented language

Section 2:

"the English equivalents,"

translations of six of the artifact sequences using the same voices

Section 3:

"the sound-effects sequences,"

eight scenes also suggesting happenings and composed of nonverbal sounds (American Foundation for the Blind, 1964, p. 11)

The artifact sequences were studied by Abramson (1963), who compared them with specific TAT cards. The present investigation deals with the sound effect sequences, the stimulus properties of which were not explored.

METHOD

The subjects were 149 third and fourth year undergraduate students at McGill University. There were 73 males and 76 females. The stimulus material consisted of a recording of the first seven sound effect sequences from the BC-APT. These are given the following ti-

ties in the test manual:

1. the storm,
2. the escaping wrongdoer,
3. the fight,
4. the suicide,
5. the prison,
6. the reckless driver,
7. rescue from the sea" (American Foundation for the Blind, 1964, pp. 11-12).

Ss were tested in a single group session. Each sound effect sequence was presented twice, with a 15 second delay between the two presentations. Ss were then given approximately four minutes to write a story for each sound sequence. They were assured that all material would be kept confidential. The specific instructions given were:

You are going to hear a series of different sound sequences. Some of the sounds will be familiar and others may be unfamiliar to you.

Your task will be to make up as imaginative and dramatic a story as possible suggested by the sounds of each recording. Don't just describe the sounds, but make up a complete story. Tell what has led up to the event portrayed by the sounds, what is happening, and then give the outcome.

Remember, don't just describe the sounds, but make up a complete story. Feel free to make up any kind of story you like. (H. J. Kramer, 1962, p. 79)

The protocols obtained were scored for:

1. Agree or disagree with the theme suggested by the title given by the manual for that sound effect sequence.
2. Number of characters appearing in the story.
3. Tone of the story: pleasant, neutral, or unpleasant.
4. Outcome of the story: success, neutral (or none), or failure.

All protocols were scored by one of the experimenters (CDA). As a check on reliability, a random sample of the protocols was scored by another scorer for tone and outcome.¹ Number of

characters was determined by a simple counting procedure, so that no interscorer check was necessary. Both scorers did, however, try to identify the "hero" of the stories. The definition of "hero" which they used was the classical TAT one: "The character in whom the storyteller was apparently most interested, whose point of view was adopted, whose feelings and motives have been most intimately portrayed. . . . the person who plays the leading role in the drama, who appears at the beginning and is most vitally involved in the outcome (Murray, 1943, p. 7)."

RESULTS

Reliability

The relationship of the story theme to the title of the sound effect sequence proved sufficiently unambiguous so that no interscorer check was considered necessary. The sample of protocols which both scorers rated yielded an overall agreement of 71.5% for tone, 76% for outcome, and 87.5% for identification of the "hero." All three of these figures are significant beyond the .001 level.

Stimulus properties

Table 1 gives the percentage of stories for each of the sound effect sequences which were scored in the various rating categories. The sound stimuli of the BC-APT apparently tended to elicit stories predominantly neutral or unpleasant in tone. In fact, no stimulus elicited more than 15% pleasant stories. Similarly, outcome tended to be either neutral or unsuccessful, in the majority of cases. The proportion of neutral and unsuccessful outcomes did vary somewhat. Thus, the sequences "The Escaping Wrongdoer," "The Fight," and "The Suicide" drew negatively toned stories from at least 50% of the subjects. "The Escaping Wrongdoer" and "The Reckless Driver" elicited stories of unsuccessful outcome from about 60% of the subjects, while "The Storm," "The Prison" and "Rescue From the Sea" resulted in primarily neutral outcome stories.

The number of characters elicited was

¹The authors wish to extend their thanks to William Brender of McGill University for his help in scoring the protocols.

Table 1

Stimulus Categorization of Stories

Sound Sequences								
Scoring Categories		No. 1 "The Storm"	No. 2 "The Escaping Wrongdoer"	No. 3 "The Fight"	No. 4 "The Suicide"	No. 5 "The Prison"	No. 6 "The Reckless Driver"	No. 7 "Rescue from the Sea"
1. Agrees with title	yes	56.5	67.8	98.6	3.4	73.6	24.1	6.4
	no	43.5	32.2	1.4	96.6	26.4	75.9	93.6
2. Number of characters	?		6.0	1.4	3.4		6.2	8.5
	none		0.7		2.8	0.7	1.4	1.4
	1	87.8	38.3	4.7	60.9	61.1	68.9	63.2
	2	10.9	54.4	70.3	30.8	34.7	17.9	22.7
	3	0.7	9.4	18.2	1.4	2.8	2.8	2.8
	4	0.7		4.7		0.7	1.4	1.4
3. Tone	5 or more			0.7	0.7		1.4	
	pleasant	6.8	1.3	2.8	11.0	2.1	8.3	14.2
	neutral	58.5	44.3	41.2	39.7	54.8	59.3	53.9
4. Outcome	unpleasant	34.7	54.4	56.0	49.3	43.1	32.4	31.9
	success	19.7	14.1	34.5	26.0	14.6	22.8	19.9
	neutral	61.9	24.8	33.8	37.7	61.1	18.6	65.2
	failure	18.4	61.1	31.7	36.3	24.3	58.6	14.9
N ^a		147	149	148	146	144	145	141

^a Since occasionally a subject was unable to write a story for a given sound, "N" refers to the number of stories composed for each sound sequence. All results are in % of "N."

somewhat variable, depending on the particular sound sequences. Only in "The Storm" was there extremely high agreement. Still, in the other stories the predominance of a typical number of characters was marked enough to indicate approximate norms against which further stories may be measured.

The percentage of stories which conforms to the formal title of the sound sequence may be seen as one measure of the ambiguity of the stimuli. In these terms, the most structured and least ambiguous was "The Fight," with 98.6% of the stories containing a fight scene. At the other end of the scale were "The Rescue from the Sea" and "The Suicide," with only 6.4% and 3.4% of stories matching the title themes.

DISCUSSION

The importance of the stimulus characteristics in TAT stories has been clear for some 20 years (Eron, 1948). The potential usefulness of auditory projective techniques requires that the stimulus pull of these stimuli also be investigated. The data from the present study provide some background against which to judge the BC-APT stories of individual Ss. The study also demonstrates that the sound effect sequences of the BC-APT provide a fair range along the ambiguity-non-ambiguity dimension. As Lazarus (1953) has pointed out, this is a desirable feature in a test. Ambiguous stimuli provide a chance to elicit a range of individual differences, while unambiguous ones pro-

vide a clear background to set off the sharply deviant response. The ease of identification of the "hero" should help to facilitate clinical interpretations of BC-APT protocols.

A small number of psychiatric Ss were also given the sound sequences investigated here. The number was insufficient to look for group differences in scores. It seems unlikely, however, that the BC-APT stimulus characteristics would distinguish between groups, since TAT stimuli do not (Eron, 1948, 1950). But the experimenters feel that there is a not-yet-measurable difference in "clinical flavor" between the college student and the in-patient psychiatric Ss. Finally, in suggestion thereof two stories to "The Storm" sequence are given below: The first is from the normative sample, the second from a patient who had been recently admitted to the psychiatric ward of a private hospital. Both Ss have had some college education; both are women in their early twenties; both tell stories which conform to the title, which contain a single character, and which were scored as unpleasant in outcome.

1. "The scene seems to take place on a very stormy night, providing an already sinister note to the setting. An individual arrives at his house, opens the front door, and ascends several flights of stairs, with heavy, tired footsteps, opens the door to the apartment, enters—The patter of rain can be heard on the window. The individual serves himself a drink. Coldness, solitude, and despair seem to reign in this scene."

2. "A very old man with no relatives left in the world comes home from work.

He's a night watchman and there's a very bad storm outside. He feels cold, his room is very shabby, he lights some paper in the stove to try and dry himself. There's no comfort in the fire, he's cold inside and now he wants to cry. He must forget his loneliness because it's unbearable now so he pours himself a drink before going to sleep. Sleep, the greatest escape from misery."

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Introversion - Extraversion and Color Preferences¹

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Summary: Experimental evidence was sought for F. Birren's claims (Birren, 1956; 1961; 1963) that introverts prefer "cool" (green-blue) colors, while extraverts prefer "warm" (yellow-red) colors. One hundred and twenty Middle-East Introvert, Normal, and Extravert subjects, classified in accordance with the scores obtained on MPI, with equal number of males and females in each group, expressed their preferences for eight Ostwald hues (R, O, Y, YG, G, GB, B, & P) using the method of paired comparisons. The findings were at variance with the above-mentioned claims in that nearly all the personality groups preferred "cool" colors to the "warm", but there was a tendency for Introverts to prefer more "cool" colors and for Extraverts more "warm" colors.

There are many reports concerning the color preferences of normal people and clinical patients, though only few of these are based on controlled experimental situations. The assumption in most of the color preference studies is that colors have affective values for human beings which vary with individual differences.

Faber Birren (1956, 1961, 1963), a foremost proponent of color psychology, stresses the clear differentiation between the color preferences of introverts and extraverts. Depending mostly on the claims of Rickers-Ovsiankina (1943) and Jaensch (1930), he concludes that introverts prefer "cool" (mostly green and blue) while extraverts prefer "warm" (mostly red and yellow) colors (Birren, 1956, pp. 159-160; 1961, p. 138; 1963, pp. 186-188). The warm colors are associated with active and exciting moods, while cool colors with passive and calming moods (Birren, 1956, p. 141; 1963, p. 187). But Birren mentions no experimental situation in which the color preferences of introverts or extraverts are obtained.

The aim of the present study is to provide an empirical evidence for the above-mentioned claims. In other words, it will examine the difference in color preferences of males and females classified as Introverts, Normals, and Extraverts (following Eysenck's terminology).

¹This paper is based on a thesis submitted in May 1966 as a partial fulfillment of the requirements for the M.A. degree in psychology at the American University of Beirut.

Method

Subjects

The subjects were 120 students from the different schools of the American University of Beirut. They were selected so that there were 20 males and 20 females in each of the Introvert, Normal, and Extravert categories. Eighty-five of the subjects were Lebanese while the rest were of Syrian, Jordanian, or Palestinian nationality. The age range was between 17 and 28 years, the mean 20.6.

Materials and Procedure

The study materials could be grouped under three main headings and these were presented in the order given below.

1. *The questionnaire* was the E (Introversion-Extraversion) Scale of the Maudsley Personality Inventory (Eysenck, 1959) which shows no significant difference between the sexes (Eysenck, 1956) and which has a cross-cultural validity (Abi-Rafi, 1965). The E Scale was divided at arbitrary points, so that those who obtained a score of 0-12 were classified Introverts, 20-28 Normals, and 36-48 Extraverts.

2. *The color-blindness test* consisted of a set of pseudo-isochromatic plates for the detection of red-green color-blindness (American Optical Company, 1940).

3. *The color preference stimuli* were eight Ostwald hues: red, orange, yellow (brilliant yellow), yellow-green (leaf green), green (sea green), blue-green (turquoise), blue, and purple (Jacob-

sen, 1948). These were Reeves Tempera-block colors painted on 10 x 10 cm. white cards. Each one of these eight colors was paired with each of the other seven colors, so that there were 28 pairs in all. To make the warm-cool color distinction, red, orange, yellow, and yellow-green were considered "warm", and green, blue-green, blue, and purple were considered "cool".

The colors in each of these pairs were assigned randomly to a fixed lateral position on larger grey square cards, and these were held 10 cm. apart by a plywood strip. To limit extraneous visual stimuli, an Ostwald neutral grey stand was constructed behind which color-pairs were displayed through openings. The light falling upon the paired colors was mainly that of a concealed 15 watt fluorescent lamp fixed on the table at a distance of 50 cm. in front of the openings. No time limit was given for expressing a preference between the colors in each pair.

Results and Discussion

The Binomial Test applied to each pair of color preferences showed that purple was never preferred significantly, while there were more significant preferences for green, blue-green, and blue. Table 1 gives the frequencies and per-

centages of warm-cool color preferences for each personality group. The Critical Ratio Test values showed that only the warm-cool preferences of the Extravert males did not differ from chance, while all the other male and female groups tended to prefer cool colors to the warm. To determine whether the extent to which warm-cool colors are preferred differs significantly for each of the personality classifications, a 3 X 2 analysis of variance was applied on the total number of warm-over-cool preferences of each group. The only significant outcome was the interaction between the personality and sex variables ($P < .05$). In this interaction, one could see a tendency for Extraverts to prefer more than Introverts colors that are "warm", and that males in all the groups tended to prefer more colors that are "warm" than females.

From the above findings one could reformulate the statement of the hypothesis in terms of "degree" and "tendency", rather than a clear-cut distinction between warm-cool color preferences as suggested by Birren and others. However, in comparing the results of the present findings with those obtained elsewhere one should also consider the following factors:

1. In the present study colors vary only

Table 1
Warm-Cool Color Preferences for Males and Females
Under the Three Personality Classifications

Color	Introvert		Normal		Extravert	
	Male	Female	Male	Female	Male	Female
Warm	131 (40.9%)	72 (22.5%)	133 (41.6%)	112 (35.0%)	166 (51.9%)	106 (33.1%)
Cool	189* (59.1%)	248* (77.5%)	187* (58.4%)	208* (65.0%)	154 (48.1%)	214* (66.9%)

*Critical Ratio significant at .01 level

in hue, but not in brightness and saturation;

2. Color preferences may differ for different objects within different perceptual contexts; and

3. Differences in the cultural background of the subjects may provide different learned color associations which could effect their preferences.

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Comment on Drake and Rusnak

The report in this Journal (1966) by Drake and Rusnak of their efforts to replicate the findings of Sapolsky (1963) contains serious errors. In contradistinction to the latter finding that a specific response to the D6 area of Card VII on the Rorschach was significantly related to suicidal ideation, Drake and Rusnak were unable to find such relationship in their population. They report a nonsignificant X^2 of .013 between Responders (to the D6 area)—Non-responders and suicidal ideation-nonsuicidal ideation, but they do not provide a chi square table. It is, however, possible to attempt a reconstruction of their table from the data that is provided. Eighteen of their total population of 28 experimental and control cases were considered to have "suicidal ideation", while 33% of these 18 patients responded to the D6 area. This would result in the following table:

	Suicidal Ideation	No Suicidal Ideation
Responders	6	8
Nonresponders	12	2

Such a distribution yields a corrected for discontinuity X^2 of 3.88, in contrast to the .013 reported. The X^2 of 3.88 is significant at the .05 level of confidence, yielding the unlikely conclusion that *nonresponse* to the D6 area is significantly related to suicidal ideation! This means that a peculiar bias operated in their selection of a control group, since 86% of this group had suicidal ideation while at the same time they report that their hospital mean for "suicidal ideation" was only 7%. Actually, if one used the 7% as an estimated distribution for a control group, the 33% of responders displaying suicidal ideation would come close to statistical significance in the direction found by Sapolsky.

Assuming that the X^2 reported by Drake and Rusnak is indeed correct,

the supporting data being incorrectly reported in some way, it is nevertheless necessary to take objection to the study as a replication. The original study—which itself was reported in replication—defined suicidal ideation in terms of either threatened or attempted suicide prior to hospitalization or if, during hospitalization, there was an attempt or "there was *at least one mention of suicidal thought* [in the total medical record]" (Italics added). It was stressed that "when no distinction is made in research design between suicidal ideation and suicidal behavior, the task of discovering criteria encompassing both proves difficult." In the replication, Drake and Rusnak state, "forty-six percent [actually this should read 64%] of the patients in this sample were *considered sufficiently serious suicide risks* to be placed on precautions." (Italics added). In their study, the clinical judgment that the patient required preventive measures against suicidal behavior is what constituted "suicidal ideation". In effect, the dependent variable had been changed from the original definition of suicidal ideation to that of actively suicidal. This, then, would not be a replication. Their procedure would falsely identify numbers of suicidally ideated patients as not having suicidal thoughts.

The unusual finding that a specific response to the D6 area of Card VII is associated with suicidal ideation must be subjected to further verification. However, Drake and Rusnak's efforts cannot be viewed as such an endeavor.

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Brooklyn 10, New York

Received April 22, 1967

LETTERS TO THE EDITOR:

Dear Dr. Klopfer,

As a dynamically oriented clinician in private practice and public service, and as a supervisor and instructor of psychology graduate students in the Los Angeles county area, I have become increasingly alarmed at the advent of 'personality assessors' and 'behavior modifiers', who are being graduated from the universities in this area.

When, about a year ago, I learned that advanced Rorschach interpretation was no longer being offered at U.C.L.A. (Mort Meyer's course at U.S.C. had been discontinued earlier), it occurred to me that if clinical psychologists with a depth orientation are not to become a dying breed, then the kind of training that I had received at U.C.L.A. and the V.A. had better be offered in this area, and the sooner the better.

Since I am a part-time instructor of graduate psychology students at Pepperdine College in Los Angeles, I decided to offer advanced coursework which would provide my students with the kind of orientation that I had been fortunate enough to receive from Bruno Klopfer, and from people like Mortimer Meyer, Norman Farberow, Edwin Shneidman, Gertrude Baker, Evelyn Crumpton, Harry Grayson, Bert Forer, Herman Feifel, Carl Saxe, and others.

For the past year, then, I have been teaching a course in advanced personality assessment, with emphasis on the clinical application of psychological tests (especially the Rorschach), in such specialized areas as differential diagnosis, evaluation of ego strength, assessment of brain damage, children's and adolescents' test patterns, and the use of a psychological test battery to plan for specific approaches in psychotherapy. I have been able to offer the course at a time which makes it possible for professional psychologists already working in community practice to obtain this type of advanced training, which I would consider essential for the counselor or psychotherapist who is working with pa-

tients in a private practice or public setting.

You will be glad to know that the response has been gratifying from both graduate students and professionals, and that I am scheduled to offer the course (Psychology 202C) again in the fall, at Pepperdine College. The Klopfer approach is very much alive in this area, and students and professionals are eager to acquire the art of Rorschach interpretation because they see it as an essential part of their becoming competent clinical psychologists. It's reassuring to me that some of our colleagues still believe that ego psychology and unconscious processes are important to understand!

Another graduate course which I am offering is individual studies in community psychology. While the issues discussed in the course tend to be sociological (city planning, poverty programs, mental health legislation, international tensions, the isolation of man in his community, etc.), what makes this course different is that clinicians, with a psychodynamic orientation, are involved in the coursework, and clinicians, not social psychologists or sociologists, will hopefully be able to utilize their background in psychodynamics, psychotherapy, etc., in the understanding and alleviation of community problems.

This kind of course, in community psychology, is not, to my knowledge, being offered in more than two or three graduate schools at most in the United States, but I anticipate that this will not be the case in five or ten years. To prevent community psychologists from being simply demographers or statisticians, I would hope for an integration of the clinical orientation with involvement in community processes, and will continue to offer this kind of training for the next few years, if time permits.

One example of the kind of thing that I'm talking about is the increasing emphasis on mental health consultation,

prevention, and other indirect mental health services. I think that the clinical point of view must be involved in such programs if they are to be effective and meaningful in the lives of the people in the community who are involved.

You might well wonder what in the world community psychology has to do with projective techniques and personality assessment, and I can only tell you that a mental health consultant whose skills are poorly developed in this area is doomed to failure when he works

in a Head Start program, or consults with social workers who work in poverty areas, and so on.

As you can see, I do feel strongly about some of these issues, and I thought you might be interested in knowing about some of the developments that have been taking place in this area.

Sincerely,
Lionel L. Fichman, Ph.D.
1454 Comstock Avenue
Los Angeles, California 90024

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BOOK REVIEW

Ghiselli, Edwin E., *The validity of occupational aptitude tests.* New York: Wiley, 1966, 155 pp. \$7.95

A necessary part of the job of an industrial psychologist may be to report from time to time on the validity of his selection tests. Some of these reports are immortalized in papers published in scientific journals, but many are buried in "unpublished" i.e. "in house" publications. In the more than 40 years that these reports have been forthcoming it has become increasingly difficult for anyone but the very expert to get an impression of the over-all success of all this testing for vocational aptitude. It has become so well-established that it is hardly questioned anymore.

Professor Ghiselli has performed the Herculean task of tidying up all the available information into a gleamingly neat summary for which all psychologists who give any thought to applications (the ultimate source of support) should be deeply grateful.

His review consists of the following steps. First the various tests were grouped into five major types: 1. tests of intellectual abilities, 2. tests of spatial and mechanical abilities, 3. tests of perceptual accuracy, 4. tests of motor abilities, and 5. tests of personality traits. Unfortunately the concept of a general intelligence factor has dominated research in this field so that intelligence tests consisting of different mixtures of primary mental abilities had to be grouped together in the first category, although measures of verbal ability tend to predominate.

The second step was a grouping of jobs according to the General Occupational Classification developed by the author which emphasizes types of work and the third step repeated this for the classification by the Dictionary of Occupational Titles of the U. S. Department of Labor which emphasizes levels as well as types of work.

The fourth step consisted of finding a way of combining the results of the many studies of the validity of similar tests for similar occupations. The validity correlations reported in each study were averaged over all studies after transformation to z ; they were weighted according to the number of cases. The fact that the criterion generally is in as much need of validation as the selection tests is pointed out, but nothing could be

done about this except that the values for validity for training and those for later performance were summarized separately. The results are presented in tables and visually in graphs. When all the results for all occupations are averaged the mean validity coefficient for training is .30, and for job proficiency it is .19.

In the fifth step the patterning of the average validity coefficients of the same or similar tests for the different occupational groupings was analyzed by factor analysis to get an idea of the dimensionality of the ability requirements of the various occupations. The results indicated that there are three independent demands for abilities: one for intellectual abilities and perceptual accuracy, one for motor skills and one for spatial and mechanical abilities. A number of occupations ranging from executives to packers and wrappers are characterized in terms of these ability demands; and six clusters were found.

In the final summary the average validity coefficients of various types of tests are given with training as the criterion. They are .42 for intelligence, .29 for immediate memory, .27 for substitution tests (like the digit symbol coding task in the Wechsler), and .45 for arithmetic. For the spatial and mechanical abilities the values range from .24 to .39, for perceptual accuracy and clerical checking tests they range from .17 to .39, and for the motor ability tests from .12 to .38. While some of these values may seem low they are high enough to warrant the widespread use of selection tests in industry.

The average value of the validity coefficients of the personality questionnaires was only .05 for the training criterion and .08 for the job proficiency criterion, although they were between .20 and .30 for specific occupations such as salesman, policeman or clerk. No references are given for the studies used in this compilation. Perhaps inclusion of these would have added too many pages; but this would have given the book added usefulness for individuals interested in specific tests or in the selection for specific occupations.

STEVEN G. VANDENBERG
University of Colorado
Boulder, Colorado 80302

Announcements

SOCIETY FOR PROJECTIVE TECHNIQUES

AND

PERSONALITY ASSESSMENT, INC.

1967 ANNUAL MEETING

TUESDAY, SEPTEMBER 5

Place: Thoroughbred Room, Washington Hilton Hotel

Chairman: Martin Mayman

9:00 - 9:50 — Distinguished Contributions Award

10:00 - 10:50 — Presidential Address

11:00 - 12:50 — Business Meeting



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FOR PROJECTIVE TECHNIQUES

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PERSONALITY ASSESSMENT, INC.

AND

THE AMERICAN PSYCHOLOGICAL ASSOCIATION

Friday, September 1, 4:00 p.m. - 6:00 p.m.

Executive Room, Shoreham Hotel

**THE CHILDREN'S APPERCEPTION TEST: ITS USE IN
DEVELOPMENTAL ASSESSMENTS OF NORMAL CHILDREN.**

Chairman: Mary R. Haworth

Participants:

Alice E. Moriarty

Ralph Witherspoon

Albert I. Rabin

Discussant: Leopold Bellak

Sunday, September 3, 11:00 a.m. - 12:50 p.m.

Crystal Ballroom, Washington-Hilton Hotel

**CONSENSUS RORSCHACHS IN THE STUDY OF
PROBLEM BEHAVIOR.**

Chairman: Norman L. Farberow

Participants:

William H. Blanchard

Margaret Thaler Singer

Fred Cutter

Gerald Bauman

Discussants: Walter G. Klopfer and Lyman C. Wynn

Monday, September 4, 12:00 p.m. - 1:50 p.m.

Crystal Ballroom, Washington-Hilton Hotel

CURRENT STATUS OF SOME PROJECTIVE TECHNIQUES

Chairman: Bernard I. Murstein

Participants:

Richard H. Dana

Philip A. Goldberg

Wayne H. Holtzman

Selma Landisberg

Discussant: Bernard I. Murstein

Tuesday, September 5, 9:00 a.m. - 10:50 a.m.

Executive Room, Shoreham Hotel

**APPLICATION OF COMPUTER TECHNOLOGY TO
PERSONALITY ASSESSMENT AND RESEARCH**

Chairman: H. Barry Molish

Participants:

Zygmunt A. Piotrowski

Donald C. Ross

Raymond D. Fowler, Jr.

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The program will consist of three plenary sessions: "Certification of Suicide Around the World," "Use and Misuse of Drugs in Suicide and Its Prevention," and "Suicide Prevention Services: Various Approaches." Concurrent paper sessions will be held on: "Current Research in Suicide and Its Prevention," "Theoretical Explanations in Suicide,"

"Suicide Equivalents," "Suicide in Adolescents and Youth," and "Workshop on Suicide and Suicide Prevention."

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Norman L. Farberow, Ph.D.
Secretary-General

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Editorial

I have just returned from representing the Journal staff at the annual meeting of the Society for Projective Techniques & Personality Assessment, Inc. The annual "Great Man" award this year went to Henry Murray and was presented in a very moving speech by Fred Wyatt. At next year's meeting in San Francisco Dr. Murray will present his address. The Society for Projective Techniques seems to be doing well, both organizationally and financially. The Treasurer, Earl Taulbee, has managed to improve the finances of the organization considerably during the past year. The Society and the Journal are both represented on a new inter-association committee on test reviewing which will

embrace not only psychometric, but also projective and objective personality tests. The Program at the annual meeting was excellent and the various symposia developed under the leadership of Barry Molish were well attended and received.

It was a real pleasure to see so many members of the Society and of our own editorial staff at the meetings in Washington, D. C. and to be able to personally share my enthusiasm with them about their work. A more complete record of the annual meeting will be published in the next issue as prepared by our Secretary, Mary Haworth.

WALTER G. KLOPFER

Diary No. 110
Date 19-9-70
File No Lib
Psych. Research

How Objective is Objectivity?

Reflections on Scope and Limitations of a Basic Tenet in the Study of Personality.^{1,2}

FREDERICK WYATT
University of Michigan

I

As clinical psychologists we are continuously upbraided for the flabbiness of our concepts and the shoddiness of our methods. Projective tests in particular show poorly, we are told. The claims made for them do not hold up when checked objectively. To our critics the reason for so much failure is obvious. Practitioners of projective techniques insist on dealing with traits that they themselves cannot properly discriminate. They do not agree with each other on the criteria for their diagnostic conclusions, and do not even consistently agree with themselves. Consequently, diagnostic formulations derived from projective tests do not stand up well when their validity and reliability is assessed. (Buros, 1965).

Diagnostic, and especially projective, techniques have certainly been criticized enough for their inherent shortcomings. Yet, obliquely, this criticism also involves psychoanalysis. This is not surprising, for psychoanalytic theory has informed much of diagnostic testing and has certainly provided the rationale for most projective tests. Critics hold psychoanalysis responsible (correctly so, I believe) for a particular approach to personality. Modern diagnostic testing has adopted this approach to a large extent, and so shows the influence of psychoanalysis both in its content-categories as well as in its technique. They share certain basic assumptions: that of the global complexity of personality of which

conflict is a regular and decisive feature and that of the stress on meaning in a event between people, or in any expressive act. The same behavior may, therefore, have a different significance on different occasions, and the same motivation may result in very different kinds of behavior. Interpretation in psychoanalysis and in projective techniques follows from these premises. It attempts to answer an elementary question: *what does this really mean?* and achieves its aim by searching for, and tracing, the organizational coherence of psychological events on different levels of meaning. We realize at this point that criticism of projective techniques may be primarily directed against interpretation, even though officially it may claim to be concerned with other problems. We shall turn to this point more often in the course of this paper.³

The psychologist-critic who scores psychoanalysis and projective techniques on the objectivity of procedures and the validity of results takes the rules of science for granted. He is accustomed to emphasize the scientific point of view and is convinced that the methods

¹ Presidential address, read at the convention of the Society of Projective Techniques and Personality Assessment, in New York City, September 1966.

² This paper is dedicated to the memory of Robert Reiningger, 1866-1949, Professor of Philosophy at the University of Vienna.

³ A number of studies critical of projective techniques have tried to take into account the commitment to interpretation. (Goldberg and Wexler, 1966, Buros, 1965). Reasons why these studies still miss the point will be discussed in the course of this paper.—Regarding the influence of psychoanalysis on diagnostic testing, it is obvious that some tests depend more on psychoanalysis than others. Unless it were their aim to deny observable complexities of conduct they would in any case have to employ interpretation. It is probably correct to say that most psychotherapies as well as most diagnostic testing done at present in this country is profoundly influenced by psychoanalytic propositions. For the use of conduct as a term comprehending observable behavior as well as its subjective experience (idea of *Erfahrung*) see Wyatt (1967).

which he is used are universal, unexceptionable and incontrovertible. Believing method to define science, he sees no reason to question that method when in his own camp there is so much agreement about it. His comfort in the use of the terms *science* and *scientific* apparently leads him to believe that they denote a single approach. The business of science is to test hypotheses derived from controlled observations, and quantification is its fundamental criterion. — This critic is usually not concerned about the presuppositions of scientific endeavor and, least of all, those of quantification. (Polanyi, 1959). It would not occur to him to ask whether the same criteria of evidence can apply as easily to the study of phantasy as to Newtonian mechanics. Both are concerned with *facts*, he would reply—if they are not, they are not worth investigating.

The critic is in no frame of mind, therefore, to consider without prejudice that which psychoanalysis or projective tests are concerned with and on what grounds they propose to examine it. Yet it may be neither possible nor desirable to adopt the criteria of physical research in the study of behavior in real-life situations. In order to meet standards of a heterogeneous methodology conditions indigenous to this subject might have to be distorted so much that the formal trimmings of evidence would in the end be quite irrelevant. One should think that the criteria of evidence must vary with the subject, and the method with the goal of inquiry. The critic of psychoanalysis and projective techniques does not take either of them for what they were intended. Characteristically, he treats them as if they were variants of his own subject matter and then castigates them for being different. It looks sometimes as if the critic had been infected by the same lack of scientific objectivity of which he habitually accuses psychoanalysis and projective techniques. This is a well-known liability of zeal; but it cannot impress us as a notably scientific attitude.

Compare in this light Kendler's contribution (1959) to the Symposium on

Psychoanalysis, Scientific Method and Philosophy with that of Bridgeman's (1959). Kendler's point, in brief, is that psychoanalysts make a mistake in building their theories on clinical data. The latter, at best, can yield "crude uniformities" on which a highly abstract theory cannot be based. "If one looks at scientific theory in physical sciences one discovers that abstract theories with broad empirical implications are primarily based upon data from highly controlled situations." Psychoanalytic theory fails because it does not possess any firm empirical foundation and would profit "by deciding to restrict the empirical scope of its theoretical formulations and by paying more attention to experimental facts."⁴ — Bridgeman, who ought to know what kind of data the physical sciences are based upon, suggests "that in spite of the apparently unsatisfactory status of some of the constructs of the psychoanalyst it would appear that there is nothing fundamentally unsound at the foundations . . . Some of the features which distinguish psychoanalysis from other disciplines can be explained by the prominent role that introspection plays." The first part of this comment can be refuted as merely a statement of opinion even though it comes from the man who formulated operationalism. Bridgeman's conclusion, however, shows more understanding for the nature of psychoanalysis than Kendler's entire critique (See Footnote 4).

A set of concepts for the analysis of communication in science recently devised by Koch (1964) proves eminently helpful for clarifying what by now has the status of an institutionalized misunderstanding. Koch asserts that a complex subject such as behavior in real-life interaction cannot be effectively discussed unless a *language community* has been

⁴ For a concise account of major psychoanalytic propositions, their logical status, and of the reasons why psychoanalysis cannot well "restrict the empirical scope of its theoretical formulations", see Hartmann's paper (1959) in the same volume. For further discussion of this subject see also Rapaport (1959), Kubie (1952 and 1959), and compare with other arguments pro and con in Hook (1959), and with Skinner (1956).

established by investigators on the basis of long collaboration in the study of a particular subject. *Language community* refers to precise semantic understanding among individuals concerned with the study of the same phenomena, in distinction to the autistic quality of so much routine communication. Language communities are essential when something not previously explored is for the first time described and conceptualized. No display of formal objectivity will replace *discrimination pools*—that is, investigators competent to make the same kinds of distinctions in their observations so that they know what each is speaking about and can understand and make effective use of each other's formulations. Koch's analysis expresses succinctly the *raison d'être* of the clinical approach. The polarity between the logic of *physicalist* method (Wyatt, 1967), intent on rendering its observations in an impersonal, formal, and abstract language, and that of a language community, concerned with differentiation of behavior-in-context, will make the rift between these two positions more understandable. The language community of the physicalist approach in psychology is so constituted that, because of its formal and highly particular quality, it can be easily "joined". The price this procedure exacts is that of all formalization, namely isolation from immediate experience. Its place is taken by the meta-empirical schematizations of the experiment which commonly lead to an increasing division of subject matter into smaller and smaller segments. Consider at this point the frequent sardonic references to the status of "initiate" in the critical charges against psychoanalysis and projective techniques (Buros, 1965). They will serve to illustrate the problem of *language communities* and *discrimination pools* as well as the difficulty of appreciating them without the requisite experiences.

The tenets of physicalist methodology in the study of personality are often summed up under the banner headline of objectivity. In the context of the present discourse this term will refer to that

version of objectivity in which the clinical approach, according to its critics, is so deficient: it is *not objective enough* and therefore it is *not scientific*. Yet physicalist methodology and objectivity are obviously *not* identical. It will, therefore, be the task of this paper to analyze the several levels of meaning covered by the term objectivity. The continued polemic use of that term has led to the paradox that its several connotations are no longer in accord with each other. We are told that science must, first of all, be *objective*; then, that *objectivity* depends on certain conditions such as quantification and the experimental method. But the dogmatic sound of this conclusion should give us pause. First of all we need to find out what objectivity really means. Its use will then be exemplified by analyzing several studies in which the defaults of objectivity are argued from different points of view. Eventually we may be able to draw some conclusions about the differential relevance of objectivity and the shifts in the meaning of that term.

II

When we examine the penumbra of meanings attached to objectivity we note first of all that they are both positive and negative. This paradox characterizes the history of the concept and its transformations. Objectivity is not simply a descriptive term. It has the ring of an imperative involving certain values: we are told that we *ought* to be objective, in the same manner that we *ought* to be sensible. In the negative the imperative turns into a warning: lack of objectivity is something we should avoid or overcome; while we are exhorted to strive for objectivity so that its presence, like that of an catalyst, will show its effect in our intellectual operations. It looks at first as if objectivity were an attitude specifically designed to achieve knowledge—characteristic in a broad sense for what Kaplan (1964) called the "Conduct of Inquiry". This is not so, however. There is clearly something in objectivity that has to do with affect and impulse. If the term does not state it explicitly, it

surely implies it. But when we take our cues from the practical uses—its usage in *ordinary language*—we also realize that objectivity does not just prescribe a set of rules for prudence in intellectual operations. The character of exhortation clinging to the term even in a highly procedural and factual context should warn us against neglecting its intent. In this sense objectivity inveighs not only against the subjective impulses to which the failure of rational inquiry may have been due, but also manifests an equally affective involvement in its own aims. This undercurrent of affect is certainly not surprising when we consider the immense complexity of psychological events leading to the creation of knowledge, and the conflict which it may either cause or of which it may be the result. To speak of *truth* (or true knowledge) only in terms of its logical conditions, is an abstraction; for when truth is examined as a psychological event (a sequence of psychological processes) it will always be entwined with elementary needs and highly subjective emotions.

The idea of objectivity is the result of a universal experience, namely, the difficulties encountered in obtaining reliable knowledge of any subject (Cornford, 1956, and Onians, 1954). Mind is prone to draw wrong conclusions from inaccurate premises, not only because of the lack of requisite techniques, but especially so because of the affective prohibition to which it has to submit. In spite of its venerable age, objectivity has therefore been slow in asserting itself and still cannot claim any lasting success. The task of having to be on one's guard against the other person's lack of objectivity as much as against one's own is indeed formidable. It points to two parallel lines of development. In terms of cultural evolution there has been a fairly steady progress toward effective, that is, objective thinking. In an historical and anthropological context this statement would have to be qualified without thereby necessarily affecting the notion of an advance in effective thinking (Smith, 1964). But what is effective thinking? The so-called misconceptions

and superstitions of former ages—were they not the result of the naively rationalist preoccupations of the 19th century? Did these superstitions not help people toward a more wholesome and meaningful life than our scientific age can claim for itself? So runs the perennial romantic argument which also hold a prominent part in the rhetoric of anti-intellectualism. To make their point, however, the defenders of collective illusions would have to show first exactly in what way the misapprehension of reality can do more for people than the unrestricted use of their intellectual resources. For it is hard to see how misinformation compounded by subjective distortion should have helped anybody but those who stood to gain from the perpetuation of ignorance in the rest of the community. Illusions are *not* constructive—no matter whether they are pious or pragmatic. The real problem lies elsewhere. Have scope and efficiency of thinking changed over time? Is there such a thing as a progressive refinement of thinking itself, not only of its results? Thinking appears to have been stationary for long periods of time, judging by the images of the world and of the self these periods produced. Then the conceptual molds (*Denkformen*) change, sometimes slowly, sometimes with dramatic speed and giddy acceleration, as in our time. What, then, are the conditions for the change and development of thinking? We can at least suggest that progress clearly goes from subjectivity (seeing what you can afford or wish to see) to a growing capacity for objectivity (seeing what there is, to the extent of your functional capacity) at least when viewed from some distance in time. This development is marked by an increase in wariness, that is, by a growing consciousness that knowledge involves liabilities of subjective involvement.

As cultures become more literate and complex, man also becomes more aware of his inclination to distort experience according to his comforts and fears. Up to that point convention had dictated the manner by which subsequent generations would experience, and respond to, simi-

lar circumstances. With the development of objectivity man also became increasingly capable of viewing things—the world of objects—as what they are in and by themselves. Before, he had to conceive them as his own needs or collective pressures compelled him. Once he had come to doubt his own naive perception of the world he also became increasingly determined to respect the *integrity* of objects as something independent of, and different from, himself. The impetus for such a fundamental change in orientation may well have come from the need continuously impressed upon man to understand the workings of his environment well enough so as to gain a minimum of control over it. Since man did not forage alone but in groups one cannot meaningfully speak of his adaptation only in individual terms. The discussion of his intellectual advance will therefore have to include the palpable readiness of the group (or at least of its more gifted members) to grasp, and subsequently adopt, the new turn in thinking implied in any new discovery. With the development of cities individual occupations began to be differentiated and formalized. In these circumstances the objective attitude soon attained autonomy. It left its original concerns (food, protection) behind in order to become a principle, the driving question of an inchoate philosophy. Establishing objectivity as a principle, in turn, marked the end of unreflecting confidence in things being what they seem to be. Doubt in the reliability of immediate experience became an enduring motive of thinking and ushered in the emergence of a new sense of differentiation between self and external world.

The paradigm of objectivity in this sense is *to be true to the object*, and is characterized by a growing universalism. Recognizing his subjectivity man felt constrained to limit the extravagant sense of his own importance and concede the existence of a world of things independent of him in its own vast and alien existence.

Now to the second of two developments postulated before. The evolutionary per-

spective of objectivity parallels a similar process in the development of the individual. He uses reason and judgement in order to ascertain the nature of things outside and independent of himself, sometimes contrary to his own subjective needs and against the comforts of primary-process thinking. He restricts himself by turning reason against himself, not without great stress—for most of the time the voice of reason is indeed very soft. But at those occasions when it was finally heard, man also had cause to compliment himself for having acted to his own advantage: because objectivity helped him to a greater mastery of his environment. Thus he entered upon the cognitive faculty most peculiar to his species, *the separation of reality from phantasy*.

Objectivity in this sense is the result of man's entire rational endeavor. Philosophers were concerned with this subject long before Plato. Historians, too, had to deal with *de facto* objectivity early, although as a specific method they came to it relatively late. Especially since the beginning of Modern Age there has been increasing concern to study, pin down, expose man's innumerable liabilities for self-deception. Modern psychology begins with Montaigne, Pascal, and de la Rochefoucauld, all concerned with uncovering the feints and falsifications of mind—a trend which directly leads to psychoanalysis and its function in the history of Western thought.

Several other implications of objectivity follow from this analysis. If subjectivity leads to error, objectivity must be "right"—even though as an attitude it is not necessarily always appropriate, as when it becomes exclusively identified with this or that procedure. Strictly speaking, the value of objectivity can only be determined by its results. Detachment may not contribute as much in one instance as it does in others. In a situation requiring empathy and intuition, for instance, too much detachment may be harmful. The capacity for objectivity, however, the relative ease with which a person can use a method to secure his aim and leave it when it does not prove

suitable for his investigation will, indeed, serve him well.

We noted before that the difficulties man encountered in being objective lead him to specific procedures designed to assist and stay him in his efforts. One of these procedures had its origin in his reflection on thinking itself and its relationship to what it is supposed to grasp. One could say (as Hegel did) that in the act of apprehending its object reason becomes conscious of itself. The pre-Socratic philosophers and Plato, and then again the Sophists provide examples for the development of logic as a method of objectification. This also introduces us to the function of *method per se*. Early in the history of civilization it became clear that recording events in time would keep them from distortion. Historians learned that asking many informants about one event would protect the record from the bias of any single informant.⁵ Other methods, such as that of geometry, originating in the practical needs of farmers, proved applicable to much more general pursuits and provided a canon of objectivity for the ancients, as it did again for the philosophers of the seventeenth century. The methodology of the sciences certainly did not develop just to keep the observer from subjective mistakes: the microscope or the differential calculus were not invented only to pit an ascetic rationality against man's penchant for self-deception. But it appears that *method* and *objectivity* were soon identified. Thus quantification, as a basic method of the sciences, came to stand for universal objectivity. A method which will do its job independent of circumstances, if only it is performed according to the rules, certainly must be objective. Therein lies the immense attraction of quantification, even apart from the power it so often provides. What *much* and *little*, *big* and *small* mean in every instance can be argued endlessly; but nobody can dispute numbers based on appropriate measurement.

We note here a new aspect of *objectivity*—the imperative to be *impersonal*.

⁵ For an up-to-date discussion of the problem of objectivity in history, see Page Smith (1964).

It follows directly from the notorious shortcomings of the individual as an observer and recorder of events. If he is so fallible his observations always need to be checked by impersonal procedure and, whenever possible, should give way to it. Hence the emphasis on the impersonal quality of standardized observation, corroboration, and measurement. The liability of impersonal procedure, however, lies in the fact that they were designed by *persons* and so depend on specific and, in the last analysis, subjective assumptions even though this is often denied. Inevitably, these assumptions represent a point of view and a bias.

At any rate, in the separation of the object from the observing subject, the idea of objectivity reached its apex. Whatever is investigated now depends no longer on the whims, the preconceived notions, not even on the special skills of the investigator. By deferring part of his own judgement to the method, he has divested himself of his own subjectivity. In arriving at a fully objective procedure the investigator has also begun to make into an object what he is studying. This certainly was a tremendous advance from earlier notions and helped the natural sciences to achieve their spectacular successes. A critical problem arises when, in pursuit of objectivity, the investigator deals with persons *as if they were objects*. Will he not thereby distort that which he set out to understand and so interfere with his aim? At this stage in the realization of objectivity the later, depersonalizing, consequences of this idea are in danger of trespassing on its earlier intent which was that of respecting, above all, the *autonomy of objects*, their independence from the observer's preconceived notions. This potential contradiction between a later and more specific, and an earlier and more general meaning of objectivity points to the gradual transformation of an intellectual *Einstellung* into a dogma. The mark of this change is in the subtle departure from pragmatic criteria: the method is right—no matter what it really does for our understanding!

We must stop here for a moment and

recognize that the term *object*, too, has diverse meanings: one signifies that *I am concerned with it*—it is the object of my interest. Another indicates that *it is separate from me and autonomous*, not an extension or replication of myself. A third meaning defines it as “*merely an object*”, not only different from myself but devoid of those qualities inherent in the use of the pronoun “I”. When, for the sake of objectivity, scientific procedure insists on making what it studies into an object, it takes a peculiar license: it defines its object before it could possibly know enough about it.

III

What are the consequences for the study of personality when objectivity is made identical with physicalist methodology? We are faced with the claim of *methodological absolutism*: only experiment and quantification can satisfy the standards of a science. It follows readily that no approach to the systematic understanding of a subject deserves to be called *science* unless it submits to the rules of physicalist evidence. In the study of personality this point of view has led to methodologies designed from the start to rely exclusively on quantification. The proponents of measurement assume that personality is a composite of units suitable for statistical manipulation. These units may differ in kind; but by nature of the statistical operation of which they are the elementals, they must also be *isolates*—something that can be separated from the rest and manipulated as such; something that in isolation is *not* different from what it is in context. This holds true when traits as large and vague as *ego strength* or *dependence* are rated (Goldberg and Werts, 1966) or when individuals are rank-ordered on such broad aspects of conduct as *adjustment*. Such an isolate may be one of a universe of traits, or it may represent a global clinical evaluation—no matter, in the process of assessment it stands by itself and signifies *yes* or *no*, *high* or *low*, *first* or *next*. At the moment of choice the isolate is *out of context*. A fixed unit, it represents for the time be-

ing (and very often without any regard for time and change) a quality in a person presumed to be just as definite, fixed, and isolated as the investigator's question puts it. Inevitably, this technique is not affected by the innumerable circumstances which modify personality from one hour to the next. Investigations of this kind, therefore, cannot go far in comprehending conduct—if we are right in believing that personality is complex, configurational, dynamic, and continuously in a state of adaptive self-transformation. There is not much in personality of which one can say simply that it is; one can only say “it is if . . . , it is when . . . , it is but . . .”. A trait is, in reality, a trend of behavior, a patterned regularity in a configuration from which the psychologist has abstracted a measurable artifact. Critics often refer to this condition of measurement as atomistic, in contrast to a global (organismic, configurational) approach. The term is suitable enough; but it also implies an elementaristic view of perception or behavior (Skinner, 1956, 1964), which the investigator insisting on measurement may or may not hold. Instead, we should speak of *trait isolation*. *Trait* in this paper will include any experiential or behavioral regularity in personality. An investigator willing to accept trait isolation either as a condition of strict measurement or as a correct description of psychological events will readily conceive his subject as an object: it responds to stimuli, learns behaviors when rewarded and avoids them when it is punished. (Skinner, 1956, 1963, 1964; Marx, 1963).

It seems natural enough that a physicalist methodology will want to transform its subject to make it fit its own principles, by treating it *as if* it were a physical system. In the study of personality, however, this leads to startling results. The demand for objectivity (always understood in the specific, limited sense employed here) effects the adoption of a physicalist methodology which, in turn, determines the conceptualization of personality. If it is to be studied properly, or “scientifically”, personality has to be modified in order to accommodate

the methods chosen for its scientific comprehension. In short, the facts of science determine the facts of life! The trouble with this approach is that the facts on which the methodological absolutist puts his confidence ("We are only concerned with Facts!") are beset by a peculiar unsteadiness. Philosophers have long suspected that facts are made, not found; or, perhaps that they are made *when* they are found. They are inevitably selected by, and fitted to, the preconceptions of the investigator. For if they were as autonomous and compelling as claimed, there should be much less disagreement among psychologists than has been apparent so far.⁶

It will be instructive to follow the place of objectivity in the development of a major theory, one often considered tantamount to a fundamental orientation in psychology. For behaviorism still represents to many psychologists not just a school of thought but the apogee of scientific method in psychology. I am following closely Koch's (1964) incisive and erudite analysis of the intellectual forces in behaviorism and their effect upon psychology at large. Behaviorism begins as much with a theory as with the insistence on objective techniques for securing data. Watson admonished psychologists to "bury subjective matter". Only observation that can be made by different observers independent of each other, like that in physics or chemistry, is admitted. The other pivots of the system are S-R orientation; peripheralism (that is, the shift of processes formerly conceived as central to receptors, effectors, and their neural connections); the emphasis on learning in S-R terms; and

Watson's particular form of *environmentalism*. Each of them may have its own justification but, proposing to apprehend the elementary conditions of behavior as they do, these concepts are at the same time decisively influenced by a drive for extreme objectification. The understanding of higher processes would be forthcoming, Watson promised, from the analysis of the fundamental principles of behavior based on learning. When this expectation could not be fulfilled, interest shifted to concentration on general laws of behavior through the intensive application of conditioning methods to animals. Neo-behaviorism, by the expedient of intervening variables, acknowledged internal states, at least after a fashion; the restrictive pull of "observable events" at the periphery of the organism, however, remained. The continued effect of the imitation of physics shows up on the stress on observable "response" behavior.

Koch demonstrates that the defense of behaviorist epistemology rests primarily on methodological grounds:

"The idea of behaviorism was that replicability of findings, reliability of prediction, and so on, could be purchased only by use of fixed linkages with "objective" indicators . . . but among the re-analyses of inquiry that are now shaping up . . . most agree in stressing the absurdity in principle of any notion of *full formalization* . . . in acknowledging the dependence of theory construction and use at every phase on individual sensibility, discrimination, insight, judgment, guess."

Koch then elaborates on the implausibility of the proposition that all terms will be understood to mean the same by "competent" investigators, if only they are defined in adequate operational terms. He also considers the cost of so much objectivity:

"In general, perhaps the most decisive indictment of the behaviorist position is its long-term restrictive impact on problem selection and . . . on problem treatment . . . If Watson and other classical behaviorists gave attention to complex

⁶ For a thorough discussion of the preoccupation with method, see Kaplan's comprehensive treatise on almost all aspects of theory and method in the social sciences (1964). "Many behavioral scientists, I am afraid, look to methodology as a source of salvation: their expectation is that if only they are willing and obedient, though their sins are like scarlet they shall be as white as snow. Methodology is not turned to only as and when the specific methodological difficulties arise in the course of particular inquiries: it is made all-encompassing, a faith in which the tormented inquirer can hope to be reborn to a new life." (p. 406, and *passim*).

phenomena discriminated by the older psychologists and by human beings generally, it was not to study but to liquidate them by fiat."

IV

Buros' *Sixth Mental Measurement Yearbook* (1965), the authoritative encyclopedia of tests and testing, contains three review articles on the Rorschach test. The authors of these articles were charged with the unenviable task of condensing the gist of the 732 bibliographical items accrued since the *Fifth Yearbook*. At the time of the *Sixth* the total score stood at 2298 accountable papers. We may assume that the three reviewers were chosen because of their representative divergencies. At any rate, by design or accident, they do represent three notably different positions and so provide us not only with learned and refreshingly personal reviews but also with three prototypical paradigms of judgment on clinical method. We are concerned here with collective opinion and the clash of ideas. I shall therefore not mention the names of the reviewers, but thank them anonymously for the assistance their work has afforded me.

The first reviewer looks at the Rorschach Test "from inside". He shows a seasoned awareness of the exasperating prolixity of the clinical situation and is apparently very familiar with the clinical use of the test. He is critical of investigators who try to make it a psychometric test and then flunk it for poor performance. He says about this line of endeavor:

"In spite of our persistent effort to convert the Rorschach into a psychometric instrument we have failed. At best the test can provide an approximation of another person's reality, a framework for giving our hypotheses the possibility of being tested, and a consistent stimulus to minimize our own biases."

The position is clear, as is its gentle irony. Though it may not be objective enough for some it does bring out the unique quality of the test. *Reviewer I* is not overly concerned with the state of

evidence for the use of the Rorschach Test. He does not seem to regard the test as a device for which evidence in the conventional sense is a primary condition. The preceding quotation makes it clear, though, that *Reviewer I* also believes that the test is capable of subtle and relevant contributions. A test providing us "with an approximation of another person's reality" cannot be altogether spurious. Yet evidence for the validity of these results is less relevant to him than (and these are my words, not the reviewer's) organization and a configurational sample of the cognitive scope of the personality under study.

The second reviewer chooses to regard the Rorschach Test as a standardized interview with special reference to Zubin's scales. He stresses content, including cognition and language, against perception, arguing that the Rorschach is a conceptual and not a perceptual test. Yet *Reviewer II* is opposed to psychoanalytic interpretation of test imagery, apparently because it is less testable than cognitive performance. Zubin's scales, he argues, show good validity and reliability, and are open to public inspection. *Reviewer II* also speaks for global impressions and sets not much stock in the traditional scoring procedure nor, presumably, in the interpretation of the test based on it. In other words, *Reviewer II* is an objective pragmatist. He is not unduly concerned with what critics, in terms of established methodology, regard as the crass irregularity of the test, but he is concerned with bringing the test eventually under the umbrella of that methodology. In short, he wants to make the test more objective and expand what he regards its objective potential, discarding what shows no such promise. He considers the clinical use of the test in this sense as an *Aufgabe*.

The third reviewer approaches the test unequivocally from the point of view of strict quantitative assessment. He does not for a moment consider the possibility that the test might not have been intended for such an evaluation and that in some respects it might be outside the scope of conventional statistical appraisal.

sal. The reader is forced to conclude that *Examiner III* (even though he does not say so explicitly) does not have the shadow of a doubt about the universal validity of quantitative evaluation. *Reviewer III* sets the stage for judgment by giving us details of the popularity of the test, which is still on the increase. According to his estimate the test is administered to at least a million people a year at a minimum cost of \$25,000,000. Approximately three new papers on the Rorschach Test are published every week. Judging from his comments, *Reviewer III* when he assembled these opprobrious data must have felt like Jeremiah: "Wherefore does the way of the wicked prosper?" Fortunately, there is a reckoning. An objective study of the results of the Rorschach Test in no way justifies its popularity. Those wishing to extenuate on this judgment of failure need not bother any longer with casting aspersions at the qualifications of critics:

"No longer can it be claimed that negative findings are the results of bluenose methodologists, of statisticians and experimental psychologists applying inappropriate criteria to an instrument for which they have no sympathy, no clinical experience, no intuitive feeling and no talent."

Indeed, the third reviewer provides the most extensive and most detailed evaluation of accumulated research findings. I shall therefore have to restrict myself to the general trend of his argument without doing justice to its many fine points. The test, according to this review, exhibits a broad spectrum of failure. We do not know how much a Rorschach report adds to the psychiatrist's understanding of a patient, even though this is still its major purpose. At any rate, the question becomes wholly academic when account is taken of the known reliability and validity of Rorschach interpretation. They are both utterly unsatisfactory and *Reviewer III* demonstrates it by referring to a number of pertinent studies. In the light of so much demonstrated failure *Reviewer III*

concludes that "it seems not unreasonable to recommend that the Rorschach Test be altogether abandoned in clinical practice and that students of clinical psychology not be required to waste their time in learning the technique." The explanation for the test's popularity will have to wait for a greater understanding of the psychology of credulity, suggests *Reviewer III*, jeering like the prophet Elijah after he had shown up the priests of Baal (Kings I, 18). "Meanwhile the rate of scientific progress in clinical psychology might well be measured by the speed and thoroughness with which it gets over the Rorschach."

V

These are strong words. But before we reflect on what they contribute to our understanding, a comment about the position of all three reviewers is in order. They take their departure from the same body of literature, yet their results are at considerable variance with each other. *Reviewer I* is not especially concerned with evidence; *Reviewer II* finds the test satisfactory in view of those of its features which offer promise of verification; and *Reviewer III* can find no evidence for the results of the test and therefore sees no merit in it whatsoever. The three reviewers evaluate the test from different points of view; nevertheless they still are talking about the same thing. Judging from this example objectivity seems to be an arrangement of variable hierarchies. What its expedients are will depend on what kind of objectivity the reviewer believes in. Instead of regulating the investigation, objectivity appears to be regulated by the predilections of the investigator.⁷ This is not a comforting thought, but perhaps it will remind us that the essence of objectivity is openness to the autonomous qualities of the object (or situation) under study, whose investigator is willing to watch his own preconceptions while making the best of

⁷ For a fine exposition of the skeptical point of view, according to which objectivity is an attitude and an arrangement which can be revoked without warning, and is, therefore, always a bit of a fiction, see Straus (1958).

them. That three competent reviewers should come to such vastly different conclusions has, first of all, to do with an appealing, though not necessarily harmonious, mixture of sentiments that pervades our entire culture. I have in mind the combination of democratic pluralism with the belief in technique as the cure for all quandaries, so well described by David Riesman. This combination has perhaps affected the plan of the *Mental Measurement Yearbook*, too. On a different level the incongruity of critics bears out that which was suggested earlier about the selectivity of observers and the unsteadiness of facts. The divergence between three appraisals of the same material enjoins us once more to recognize the difference between objectivity as an attitude, and objectivity as a particular method, even though it may have been sanctioned into universality. Great risks are involved if the latter defines the scope of the former.

Reviewer III is obviously highly competent in the statistical evaluation of psychometric tests. I hope I do him no injustice when I infer from the particulars of his argument that he is more familiar with the research literature on the Rorschach Test than with its clinical use. He is exclusively concerned with some of the techniques of objectivity. Satisfying their requirements is, for him, identical with objectivity and thus determines the acceptance or rejection of the clinical use of a diagnostic device. The limitations of his position lead here to an essential misunderstanding of scope and nature of the Rorschach Test. The test whose unique capacity, in *Examiner I's* apt phrase, consists in "providing an approximation of another person's reality" is not a device for the measurement of traits. At its best the test provides a plausible pattern for the organization of an individual's personality. The test procedure itself supplies us with samples of behavior resulting from the individual's effort to cope with several modalities of experience all at once and organize them into a measure of coherence. The interpreter of the test, again under optimal conditions, inte-

grates these instances of behavior (or "adjustment") into a plausible model of the testee's needs, his coping-dispositions and his resources. This *schedule of adjustment* seems to me the essence of the test. All its uses derive from it, by drawing more or less justifiable inferences from samples of coping and their tentatively interpreted order. The *diagnostic* function of the Rorschach Test depends on what meaning we wish to assign to that term. If the term refers to the exercise of diacritical classification—"diagnosis"—which the test is to assert or deny, the use of the test is again derivative. This is probably the practice to which it is most frequently put. I have no doubt that it can make, and continuously makes, relevant contributions to psychiatric diagnosis; but it seems to me quite natural that the Rorschach diagnostician also will at times fail. "Failure", to be sure, is only a name for not meeting the conclusions drawn by other observers from other samples of behavior. They may be more convincing but, by the nature of the subject, they most likely will be hypothetical, too. How much of the "failure" can therefore be attributed to the inherent defects of the Rorschach Test would have to be examined carefully in every instance. It appears that there are many more reasons for the want of fit between the conclusions drawn from the Rorschach Test, and those drawn from other data than *Examiner III* is willing to recognize.

What else is wrong with the test besides its statistical deficiencies? It involves an image of the complexity of personality which comes dangerously close to that presented by great literature. This must be a serious risk for the morals of scientific psychology. *Reviewer III* returns several times with undisguised sarcasm to the "richness of personality description that comprehends the entire lexicon of human characteristics . . ." often found in test reports. (True, one could not say this of many other tests whose statistical credentials recommend them to the psychometrist). *Examiner III* suggests that the prac-

itioner of the Rorschach Test must, to hold his own, possess gifts "similar to the literary talents of a novelist and biographer combining a perceptive and intuitive sensitivity in human qualities and the power to express these perceptions in subtle, varied and complex ways." This may explain in a modest way why it is so difficult to do statistical justice to the Rorschach Test. *Examiner III* may not think these competences desirable for personality assessment. In any case, his position and that of other critics of similar persuasion needs to be clarified. Isn't it rather obvious how the psychology of personality would profit if such talents were displayed more often? Our journals, for instance, might become less dreary and more readable than they are at present. *Reviewer III* believes that the final report of a Rorschach expert can "in subtlety of personality description and depth of penetration . . . often rival the most elaborate characterizations of Marcel Proust and Henry James." Would it were so! But these two writers are not so easily rivaled and to require it of the Rorschach practitioner means asking of him even more than that he meet acceptable criteria of validity and reliability.

Of course, *Reviewer III* leaves us in no doubt that so much stress on the richness and complexity of personality is in itself suspicious. "The entire lexicon of human characteristics" trespasses on that which is fundamental to his point of view, the isolation of traits, and so compares unfavorably with the comforting frugality of psychometric tests. That the Rorschach could somehow be capable of doing something other tests cannot do seems to be one more strike against it. When *Reviewer III* believes that the chief use of the test "remains that of aiding the formulation of psychiatric diagnosis" he is—alas!—right from the point of a job analysis of many Rorschach practitioners, but he is still far from comprehending the scope of the test. He comes near grasping that scope only when he sets out to make fun of it.

This is the point, then, to question the

position for which the third reviewer so vigorously speaks. If the test presents us with a sample of the individual's resources in a task of cognitive organization we may hope to discern persistent trends in his ways of coping; but we cannot well expect it to show more statistical reliability than the behavior of persons from one occasion of coping to the next, and from one life-configuration to the one following upon it. Two examiners may derive different impressions from the same protocol and quite often they have been carried away each by his own pet ideas. But it is quite possible, too, that each arranged the testee's putative personality around a different focus; that one of them was more sensitive to the testee's latent potential, while the other dealt effectively with manifest traits but neglected to ask himself how they would look in a different life constellation.

The question of validity is even more paradoxical. *Reviewer III* seems to share the assumption of much research critical of the test, that one can surely grasp the essentials of a person from a couple of interviews, or accept somebody else's psychiatric diagnosis and then set these data against the interpretation of a Rorschach protocol. In reality all this involves a series of semantic pitfalls; words and terms have a different significance from one person and one setting to the next. Of course this applies also, to the psychoanalytic phrases bandied back and forth among interpreters until they have the high sheen of cliché. But it applies especially to the questions Rorschach experts must respond to when they are enlisted for one of the critical studies of which *Reviewer III* reports with so much satisfaction. *Reviewer III's* question: are the recipients and the interpreters of the report speaking the same language? is both self-answering and self-limiting. We can be sure that it will not be solved by suggesting: here is an objective question—just answer yes or no, rank first or second! The point is, therefore, not to demand that we hew closer to the objectivity of statistical checks, but instead take it for granted

that it will cost much effort and joint experience to establish discrimination pools for the complexities clinical psychologists are commonly faced with. Koch (1964) advises us well when he says:

"In psychology we must have many language communities: many subgroups of individuals equipped with diverse stocks of discriminations and differently specialized sensitivities."

The aim of the Rorschach test, the sampling of an individual's reality, encourages not only "richness of personality description" but may also carry the potential for the differentiation so much needed in the study of personality.

In summary, the problem of the third review, as well as of most of the research on which it rests, is that of objectivity officially tied to a method (statistics) and unofficially inspired by the fiat of preconception. The points analyzed in the earlier theoretical section of this paper can be spotted easily: trait isolation and, by implication, the transformation of the global context of personality into a stratification of trait-entities supposed to stand in a stable and rather mechanical relationship to each other. We can clearly see how the investigator's method defines his subject. Above all, we recognize the replacement of objectivity as a universal attitude by the dogma of methodology; in short, a version of objectivity not so objective any more.*

VI

This leaves us with a troubling question: how *can* we evaluate a device like the Rorschach test? If the restrictive

* Chein (1966) says in his assessment of the social and interpersonal roots of strife between proponents of the clinical, and advocates of the experimental approach: "If the university scientist knows anything at all about the self-questionings of the practitioner, the critical self-examination in the light of experience with respect to matters of belief and doctrine—and, as a rule, he at best knows mightily little—the questions are not apt to be the ones the scientist puts within his own cathected sphere, and the checking of experience seems to be devoid of his own favorite checking devices." (p. 334).

version of statistical objectivity does not apply to it, what will? A serious problem which, indeed, cannot be dismissed lightly. In the present context I cannot hope to outline its true complexity, but we should also consider that it simply may not be possible to come to any decisive appraisals at this time. Let me suggest an example. What would be the result if the correctness of routine medical diagnosis were examined on a very large sample of cases? How would the research team set up such a project? In order to be representative a random sample of diagnosticians would have to be selected, because the largest number of diagnoses is made by general practitioners, not specialists. Compared with the intractability of psychological diagnoses, however, the project should benefit from the fact that so much of modern medical diagnosis relies on tests based on exacting research in the physical sciences. But who would check the correctness of diagnosis and by what procedure? What would the criteria of correctness be? Can we assume that there is, at least in principle, a clear-cut answer to every diagnostic question? Does a competent medical diagnostician look for a specific disorder or for sets of interacting liabilities, from which he hopes to single out the more relevant ones without losing sight of a whole system of shifting physiological balances? Is the concept of disease universally relevant? In some instances it obviously is, just as there are clear and focal sources of ill health; but this does not account for all and perhaps not even for most incidents of illness and of medical diagnosis. (Dubos, 1964).

I have no illusions about the limitation of my example. It does not fit the case of the clinical approach in psychology accurately enough to throw light on our quandaries. Analogies prove nothing. Still, they may sharpen our attention and in some instances assist us in recognizing more clearly the implications of our own problems in the blueprint of a somewhat different one. In this sense there may be some use in comparing the contrived, but by no means unrealis-

tic, example cited before with the more limited one of evaluating the Rorschach Test.

VII

It seems to me that conventional norms of research methodology cannot be applied to the study of personality-in-life without careful reflection to the inevitable cost in context and meaning. Such reflection must be directed to the conditions in which a statement on behavior-in-life makes sense; it must not be distorted into an isolate, a psychological artifact, even though it may then figure as a dependent variable. The conditions imposed by experiment and quantification deserve reflection, too. We shall have to ponder what one might call the *costs of formalization*. These costs are usually high and endorsement by statistical test may not always compensate for relevance and actuality of results. It is a truism that science needs to simplify the natural complexity of things (Marx, 1963), but if it is not to become a license for methodological exercise both costs and profits of such simplification need to be clearly assessed.

The isolation of a single variable, a necessary and often effective procedure in other fields of psychology, leads in the study of personality often to elaborate fictions of science substituting the schedules of the laboratory for those of real-life behavior. To point to these fictions is before measurement-minded psychologists something of a breach of etiquette: it just isn't done! But the fact remains that conventional techniques of research cannot afford the many contingencies any single trait always has, nor sustain all the reservations that would have to be made concerning them. You cannot score a statement when it bristles with *if's*, *but's*, and *when's*. The most elementary consideration in the study of personality concerns its pluralistic, configurational quality manifest in the relationship of past to present experience, as well as in the continuous reciprocal adaptation between the individual and a whole landscape of interlocking environ-

ments. Under these auspices the fiction of variables may not spell simplification, but the denouement of a method more concerned with its own games than with its avowed aims.

The clinical approach has found a form for the tentative integration of complex observations, namely *interpretation*. In the broadest sense *interpretation* means the recognition of dominant patterns and modes of organization. It includes that which systematic research usually has the greatest difficulty in comprehending, the complexity of events and the shifts of meaning. The interpretation of a dream, a symptom, an attitude, a basic disposition suggests a pattern of intent related to as many contingencies of habit, resources, data of the personal history, and intersecting environments (to name but a few) as the observer can hope to grasp. *Interpretation* is a way of referring to a sequence of self-transforming, self-correcting hypotheses, a plausible integration of observations under the aegis of certain suppositions and expectations derived from theory. The strength and, of course, the fallibility of the clinical approach lie not so much in specific pronouncements, although they are continually demanded of the clinician; the strength of the clinical approach lies in the integration of observations into a pattern that *makes sense*. If it does it may thereby offer a schema for further corrective observations and eventually lead to a systematic explanation. The misunderstanding between the advocates of the traditional methodology of evidence and those of the clinical approach lies exactly in this area: in the significance of interpretive statements rendering meaning, which in emphasis are more organizatory and integrative than propositional (*aussagend*). The configurationist should always be explicit about the pragmatic, as-if quality inherent in his statements. The contributions of this approach to objective understanding, to the compass of collective knowledge, rest on different premises and refer to a band in the broad spectrum of objectivity different from that of the experimental psychologist.

VIII

I should like to sum up what I consider the problem of objectivity by reminding you of the several interacting meanings of this concept. An expression such as I have used throughout the paper, *the problem of objectivity*, must not be misconstrued into a claim that the clinical approach to man is above objectivity and has no need of it.

What we call the clinical approach is, in its theoretical premises, identical with what concepts like *global* and *organismic*, *configurational* and *historical* imply. The last term refers to a distinction in the logic of sciences recently proposed by Simpson (1964). That Simpson, an eminent paleontologist and evolutionist, is not specifically concerned with the problems of the clinical psychologist (even though he has shown a remarkable grasp for their premises) seems to me to lend more weight, rather than less, to the relevance of his ideas for psychology. Simpson suggests that all sciences deal with immanent and with historical factors. The immanent ones are unaffected by natural change through time. Sciences concerned with such changes deal with events brought on by hierarchies and configurations of events. The contingencies of these configurations become increasingly more complex when we move from the inanimate to the organic, and reach the height of complexity in those sciences which are concerned with human beings, their conduct and their enterprises. Most of the time physics can afford to neglect the history of its objects, e.g., that of the molecules of a gas. With increasing complexity from historical geology to the evolution of species events become more unique and thereby less predictable. Immanent factors, such as the laws of physics, have a part in all historical events; but while themselves invariant they lead to unpredictable configurations. The rules of proof and prediction, therefore, apply to the immanent sciences only while historical sciences, because of the impact of configuration and change on their subjects, aim for trends

and regularities but not for laws in the true sense of the word.

But to return to the question of objectivity: in some respects we need more of it in clinical psychology than investigators committed to an elaborate, quantitative and experimental methodology who can afford it to leave some of their worries to the impersonal vigilance of their method. Those of us who attempt to derive generalizations from psychotherapy or from work with projective tests need a special faculty of doubt about their own conclusions. We need to be continually wary of words, especially of the big fashionable ones, and of the semantic mischief they can work. We need equally a knack for withholding belief and for questioning our fondest assumptions. We are, as a rule, more dependent on the organizatory guidance of a theory such as psychoanalysis than an investigator of more specific and more limitable phenomena. Yet we should also be able to set aside theory, put it in parentheses for the time being and confront our subject *de novo*, ready to start from scratch if it is indicated.

The study of personality-in-life demands a special alertness for the large spectrum of observations involved in its context, and for all its likely and unlikely connections. This is a place where statistical methods can be useful. In no case can we afford to dismiss a technique which may help with the connection of unwieldy data, *if* we can also clearly see what of the subtlety and complexity of our material will have to be sacrificed for that gain.

We should, finally, have a special concern for the effects of time and should be conscious of our abiding limitation in grasping its impact. It seems to me that it is especially difficult for the mind to keep attentive to the passing of time and to the changes time brings with it; in short, it is extremely difficult to appreciate fully the historical dimension of our existence. It is difficult to keep different stages of observation apart—as in a long therapy—instead of boxing them into facile abstractions—this one about the Oedipal

situation, that one about ambivalence—and without being aware of it, treat them more as an illustration of our theory than as unique events. It simply is an exacting task to keep large stretches of time clearly in mind, without massive recourse to abstraction and schematization. The moment of experience is the primary reality available to us. Consequently, we are also too much pushed and restricted by it. All orientation radiates from *I am experiencing this now*, and at least in an epistemological sense, all we have to state, all our *Aussagen* come from this primary event.* We have to be aware of the past, individual as well as social, and must conjecture about it all the time, yet find it hard to be conscious of what *passing* means, and can only reconstruct the past in the present moment (Wyatt, 1964). In this respect no statistical corroboration will help us much. We shall have to do the watching and reflecting ourselves until we come to a new turn in the expansion of consciousness.

Thus the question of objectivity can only be: what kind of objectivity? by what means? and to what end? In the polemic about objectivity we had reason to score the monism of method and its most restrictive consequences, an atomistic concept of personality, hypothetical traits and behaviors in isolation, and the transformation of subjects into mechanical objects of research. If conclusions drawn from clinical observation are not regarded as deficient on principle they are sometimes defined as proto-science, an early and immature stage out of which the accomplished, real sciences have long passed. But all sciences are by definition inchoate and will be so until they have succeeded in accounting for all possible contingencies of their subject. To say that the psychology of personality is not yet out of the naturalistic phase is misleading in more than one way. We have need to

* For a relevant theory of the transformation of experience which would be extremely fruitful for the general theory of psychology but has not yet been utilized for this end, see Reininger (1947).

expand on naturalism rather than quit it; instead we should make a better, more comprehensive and more systematic method of it. Recent developments in animal ethology have shown how much can yet be gained from this approach. Psychology, like biology, simply has more naturalistic concerns than physics or chemistry. Until drastic new discoveries make it unnecessary we shall contribute to psychology as a whole by cultivating the skills of observation nearly discarded by the physicalist approach. We should readily admit that the events with which we are concerned do not often allow as conclusions akin in certainty and specificity to those found in the physical sciences. But this is more of a pseudo- than a real problem: for these events do not fit the concepts of the physical sciences to begin with. We can not give up large portions of human experience as a legitimate subject matter for psychology because they cannot justify their existence before the traditional methodology of research. It will be a happy day when we are finally released from having to defend our position and instead can summon our energies for attending to our work.

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Rorschach Stimulus Modification

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Summary: The major Rorschach stimulus dimensions were varied by E. E. Baughman in a 1954 study leading to the conclusion that only form affects responses. In 1958 his review of the literature in this area led to the same conclusion. The next year he reversed his position on the basis of the most definitive study of Rorschach stimulus modification yet published. However, close examination of the 1954 study demonstrates that, contrary to Baughman's original conclusion, it, too, supports the effect of stimulus characteristics.

In the area of projective techniques at least one issue has evidently been definitively settled. This is the question that revolved around the stimulus modification of the Rorschach. At one time studies in this regard appeared to challenge the existence of the usual method of utilizing the Rorschach since they indicated that the major stimulus dimensions of the Rorschach such as color and texture did not affect the subject's responses. The most surprising aspect of this episode is that the major studies both criticising and supporting the effect of the stimulus dimensions were done by the same person, E. E. Baughman. As yet his supporting study does not appear to have been widely recognized and as such this situation should be made known.

History of Rorschach Stimulus Modification

In order to make this sequence evident some of its history needs to be given. Although studies in stimulus modification had been reported for many years (Ainsworth, 1954) this history will begin in 1954 when E. E. Baughman published a study that was originally his doctor's dissertation from the University of Chicago. In this study he systematically varied the stimulus characteristics of the Rorschach cards by removing color from one set of cards, shading from another, and leaving only the outline of either the blot alone or the blot plus the major internal areas, in two other sets of cards. Using 39 scoring categories he found that 21 of these were not affected by such stimulus variation. From this he concluded that "The data are clear and

impressive in their demonstration that the major dimensions of perceptual behavior in the Rorschach task remain remarkably constant even though marked alterations are made in the stimulus attributes. In twenty-one of the thirty-nine scoring categories no group differences occurred at or above the .05 level of significance." (Baughman, 1954, p. 161)

Several years later in 1958 Baughman contributed another major criticism of the classical use of "The role of the stimulus in Rorschach responses." This was published in the *Psychological Bulletin* (1958). In this article he reviewed all the studies that had been made on the Rorschach in which some stimulus property had been varied. Twenty of the studies varied color while four attempted to vary other stimulus properties. Utilizing a table of 22 response categories each of which was used in at least a few of these studies it was concluded that while affecting preference for certain cards and to some extent content these studies failed to show any effect on color shock indicators such as R/T, productivity, and 8-10/R%, or on any of the other response categories listed. Again this seemed to support Baughman's original contention that except for the basic outline of the blot the stimulus properties of the Rorschach do not contribute anything to the response.

This criticism of the classical Rorschach analysis had its effect. The only article that challenged any part of Baughman's studies did not question their major contention (Stein, 1955). Other authors simply accepted Baughman's conclusions (Crumpton & Groot, 1966; Stricker, 1964). Dorken (1956) at-

tempted to show that the Rorschach was valid because of the lack of stimulus effect. Later Holzberg (1960) criticised Dorken's idea in that it was at variance with the classical analysis of the Rorschach but he was not able to present any adequate defense against Baughman's criticism. Even more recently Murstein includes the two articles mentioned above in his *Handbook of Projective Techniques* (1965) to support his concept that the Rorschach is a verbal not a perceptual test while completely failing to mention the later study (1959) in which Baughman reverses his position.

This 1959 study by Baughman is essentially a replication of the original 1954 study with a larger N and better control of all variables including the stimulus variables. As such this study probably comes as close to being a definitive study as can be made in this area of psychology and consequently it should take precedence over all earlier studies. (It is the one that Murstein should have included.) The results of this study in terms of data were much the same as those of the 1954 study but they were more conclusive. However, on the basis of this 1959 study Baughman completely reversed his position. "... it is clear that properties of inkblots other than their form do affect the responses of Ss. Earlier and more limited studies had arrived at a somewhat different conclusion; in doing so they contradicted both clinical experience and common sense, if not perceptual theory. The small number of Ss in many studies, the limited number of dependent variables considered . . . and restriction of most studies to the color variable probably account for the early findings." (Baughman, 1959, p. 181) This reversal on the basis of such a well done study completely undercuts his previous criticism and now forms one of the strongest defenses of the Rorschach's validity in the literature. More support to this conclusion that Rorschach stimulus characteristics do make a difference was given by Exner's study (1959) published in the same year. It is also a well

done study though limited to color and it fills in some areas that were weak in Baughman's study such as the effect of stimulus characteristics on content categories.

Reevaluation of Baughman's 1954 Study

Although such a reversal appeared to be unexpected, close examination of the 1954 study reveals that it should have led to the same conclusion as the later study. Although now a matter of hindsight the presentation of such a reevaluation is warranted in order to demonstrate how the same data can be used for two opposite conclusions.

In this 1954 study Baughman's whole conclusion is evidently based on the single statement that of 39 indices 21 were not affected by stimulus changes to a .05 level of significance. This involves supporting a conclusion by failure to demonstrate significance or a failure to reject the null hypothesis which is a major error in statistical methodology. Baughman's later study (1959) demonstrates why this is considered to be an error since in it a larger N led to significance in most of the same categories that failed to do so in the earlier study.

Besides this difficulty several others are apparent. First, although 21 indices were not affected, 18 were and quite strongly. This is close to being half of the indices. Secondly, the table of scores demonstrates that the number of scores in at least four categories (Y, VF, TF, FT) were so small that they could not have reached significance under any condition. This reduces the total number of categories in which it was possible to obtain significance to 35 and 18 of these were significant, which is over half. Thirdly, time is evidently not affected very much by stimulus properties and Baughman used five different measures of time in his analysis thus inflating the number of categories that would not show significance.

Even if we overlook these difficulties, as well as some others that are not mentioned here for lack of space, attention should be paid to the relative importance

of those categories that were significantly affected by stimulus change. These categories were: *R*, *D*, *M*, *C*, *CF*, *FC*, *YF*, *FY*, *FV*, *F+*%, *S*, *F*%, and six out of the nine content categories that were investigated. The vital importance of these categories to the classical method of Rorschach analysis is self evident. In any case except for the shock indices, most of the categories which did not demonstrate significance have in the past seldom been associated with stimulus properties in Rorschach theory.

This reevaluation of Baughman's study concludes that over half of the indices which could possibly demonstrate significance did so, that by and large these are the ones which classical Rorschach theory relates to the stimulus properties other than form and finally that they are generally the most important categories in Rorschach practice. Thus the study actually demonstrates the vital importance of stimulus properties in the Rorschach technique rather than their lack of importance.

Baughman reversed himself in 1959 when only five of the scores that were part of the earlier 1954 study failed to show significance. He did not even bother to measure the effect of stimulus change on color, shading and content categories which was already clearly evident even in the 1954 study. However, some of these categories were investigated in Exner's study (1954) and the effect of stimuli change was demonstrated.

CONCLUSION

Baughman's studies are all of exceptional merit and they have served to bring to a definite conclusion the issue of whether the major dimensions of Rorschach stimuli contribute to the re-

sponse as is postulated in classical Rorschach theory. This problem has been both potent and of longstanding (Ainsworth, 1954) and as such Baughman's 1959 study is one of the few definitive studies in this area of psychology.

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The Problem of the Stimulus in Rorschach's Test¹

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Summary: Russell's description and interpretation of my work on how stimulus attributes affect Rorschach responses must be corrected on several points. Unfortunately, I contributed to this type of misunderstanding by failing to provide a proper integrative discussion of a series of studies in my final paper. The stimulus in Rorschach's test is still a very real problem.

These remarks have been prepared in response to an invitation extended by the executive editor of this journal. I am grateful to Walter G. Klopfer for showing me this consideration. Also, I am grateful to Russell (1967) for prompting me to re-examine my work on the role of the stimulus in Rorschach's test.

Upon rereading and rethinking a series of five papers which I published on Rorschach's test between 1954 and 1959, I do find what I must consider to be a major inadequacy. However, Russell does not mention this deficiency in his remarks, nor had I seen it until I was prompted to make this re-examination. It rests not in my 1954 paper, but rather, as I will attempt to make clear later, in my failure to provide a proper integrative discussion in the 1959b paper. Furthermore, in my judgment, Russell does not present a correct description or interpretation of the 1954 paper on which he bases his major criticism of my work.

Russell, in evaluating the 1954 paper, emphasizes that 18 of the 39 dependent measures were "quite strongly" affected by the variations in the stimuli that had been made. What he fails to appreciate, however, is that the variations in the stimuli included alterations in dimensions other than color and shading. And, as the data tabulated in Table 1 of that article make quite clear, almost all of the significant effects which were obtained must in fact be attributed to stimulus dimensions other than color and shading. Thus, when responses to the

standard series were compared with responses from the achromatic series, significant differences were found on only 4 out of the 39 scoring categories: C, CF, FC, and FV. (And, of course, it is hardly surprising to find more color scores when the stimuli contain chromatic cards than when they do not.) Similarly, when responses to the achromatic series were compared to those given to a series in which shading differentials had been eliminated, only 4 out of the 39 scoring categories showed significant effects: *FY*, *FV*, *D*, and (*H+* *Hd*) %. (Again, two of these scores are shading scores and differences in them would certainly be anticipated.) The main point that should be emphasized, then, is that there is very little indication that most of the 39 dependent measures are influenced by either the color or shading properties of the blots. Most of the differences to which Russell refers must be attributed to other variations that were made in the dimensions of the stimuli, such as changes in form and figure-ground relationships.

The 1954 paper concluded, quite correctly I believe, that "The dynamic or generalizing effects of color and shading upon total perceptual behavior are not as extensive as Rorschach theory has postulated." (p. 164) Also, that "The importance of the geometrical form and the figure-ground dimensions of the stimuli in determining perceptual behavior is emphasized." (p. 164) Contrary to Russell's presentation, however, I did not go so far as to say that "... only form affects responses" or that "... except for the basic outline of the blot the stimulus properties of the Rorschach do not contribute any-

¹The author is indebted to Samuel Fillenbaum and Patricia F. Waller for providing criticisms of a preliminary draft of this paper.

thing to the response." In fact, my concluding point in the 1954 paper was that "The dependence of the formation of certain percepts upon particular stimulus attributes is indicated, as well as the inability of many subjects to report the influence of the pertinent attribute." (p. 164) In subsequent years, I went on to develop a new Rorschach inquiry (see my 1958b paper) and reported how its use affected color and shading scores (see my 1959a paper). It is difficult to conceive why I would have developed this later line of work if my conclusions in 1954 had been as Russell reports them.

My work, as well as that of others, demonstrates *not* that color and shading do not affect the testee but rather that such effects are often subtle and difficult to detect. Moreover, this experimental work shows quite clearly that when we are confronted with certain patterns of test behavior we must be very cautious in attributing these patterns to the color or shading properties of the blots. We cannot conclude, however, that color shock or gray-black shock *never* occur; only that such behavior is less common than the traditional theory would lead us to believe. For example, we now know that blocking on Card II may be due to the sexual implications of the lower central area rather than to its color. Or it may result from the difficulty that a subject experiences when he wants to produce a *W* response for a stimulus that is broken up into a number of discrete areas (Baughman, 1959b, p. 161). Years ago we tended to label (rather automatically, I believe) such blocking "color shock," but additional clinical experience and experimental studies have made us more sophisticated with regard to this matter.

In describing the study reported in my 1959b paper, Russell refers to it as "... essentially a replication of the 1954 study. . . ." As I see the issues now, I certainly cannot agree with this judgment. First, variations in the stimuli were used in the 1959b study which were not used in the 1954 study. Second,

normals rather than neurotics composed the subject population. (For the importance of this difference, see p. 153 of my 1954 paper.) Third, fewer dependent measures were evaluated. And, finally, the analyses of the data were not presented so as to make it easy to differentiate color and shading effects on summary scores from effects produced by variations in other dimensions of the stimuli.²

The 1959b study was, essentially, a normative study. A great deal of data was carefully gathered and reported in detail, hopefully in a way that would prove to be of value to teachers, researchers, and other users of Rorschach's test.³ Thus, not only were overall summary scores presented for eight groups, but comparable data were presented for each stimulus in its several variations. Also, lengthy tables were developed to show how the content of responses to various blot areas was sometimes dependent upon stimulus attributes other than form. In short, then, approximately 48 pages of this 50-page article were devoted to a detailed presentation of the data generated by 648 normal subjects.

Let me turn to the primary deficiency in this paper, at least as I view it now. The difficulty rests in the discussion, which must be faulted on at least two counts. First, the discussion is too brief and too superficial; in no way does it do justice to the quantity of data that was carefully collected and reported in the paper itself. Second, the discussion fails to give adequate consideration either to the work of others or to my own findings which had been reported in previous papers. This was the place for an effort at integration, but I did not provide it. Thus I opened the door for certain misinterpretations of my work, one

² As noted above, this was done in the 1954 study, but its importance does not appear to have been properly appreciated by Russell. In my judgment, I should have reported comparable analyses in the 1959b paper, but I did not. At the time, I pleaded lack of space (see p. 148 of my 1959b paper). Now I feel that I should have permitted the editor to make such a judgment, if it indeed had to be made.

³ This was, I believe, wishful thinking.

example of which may be found in Russell's critique.

Returning to Russell's paper again, he seems to view my work as providing definitive support for the traditional view of the effects of stimulus attributes (by which he must mean color and shading). This simply is not true. As I have already made clear, my work, and that of others, shows quite clearly that the dynamic or generalizing impact of such stimulus attributes usually is considerably less than Rorschach theory or practice would at one time have led us to believe. At the same time, however, this work also shows that such attributes oftentimes do affect test behavior, even though less grossly than postulated earlier. The real problem is a tough methodological one: How do we know if the observed behavior has been affected by color, shading, or some other stimulus attribute? We are a long way from a satisfactory solution to this problem within the confines of the Rorschach test itself.

I have suggested elsewhere (Baughman, 1959b, p. 181), however, how we might go about solving this problem of whether or not the subject's response has been affected by color, shading, or other blot attributes *without* relying upon a very questionable inquiry procedure. Actually, though, as long as we limit ourselves to the ten Rorschach blots the methodology that I suggested there is likely to be of limited value. This is because the record of any given subject is likely to provide us with only a very few responses which could be evaluated with reasonable certainty by means of the probability tables which I have suggested be constructed. (Table 13 in my 1959b paper shows how such tables would look.) On the other hand, if we developed a new series of stimuli for this particular purpose, it is likely that we could construct a good instrument to measure how a person is being affected by color, shading, and other stimulus

attributes without being dependent upon the traditional inquiry procedure.

In summary, it is my judgment that we are far from a solution to the problem of the stimulus in Rorschach's test. As long as we confine ourselves to these ten blots, I do not have much confidence that a truly adequate resolution of this issue is possible. From what we have learned, however, we could go on to develop an adequate measuring instrument. But to do this would require a great deal of labor; to so exert ourselves, we would have to be convinced of the value of the measures that these labors would provide.

In offering these remarks, I have not been commenting upon the clinical usefulness of Rorschach's test. The value of this technique in this sense is well established, despite continued attacks by critics. There are certain problems, however, which demand that we extend our thinking beyond the ten blots and the orthodox methodology. It seems to me that the issue of the determinants is one such problem.

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A Comparison of the Occurrence of Oral and Anal Content on the Rorschach

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Summary: The Rorschachs of 102 male psychiatric patients were scored by the Holt system for manifestations of anal and oral psychosexual content. The frequency of occurrence of the two types of content was contrasted. Oral content occurred nearly twice as frequently as that of anal content (*t* test significant at less than .001 level). There was some suggestion that this difference decreases when the content expressed is of a very primitive nature.

A source of clinical debate concerns the more frequent occurrence of oral content in Rorschach responses than that of anal content. If this idea is valid, it implies that some classes of psychosexual ideas are more readily accepted for expression than others. Further, if such a difference does exist, it would seem to have important ramifications as to the meaning placed on the occurrence of various kinds of drives. This study had the limited objective of determining the relative frequency of oral and anal content in an unselected sample of adult male psychiatric patients. In the absence of a further study essentially designed to develop normative data, the findings from this research may also serve as rough measures of the base rates of responses with oral and anal content.

Measure

Holt has published a manual for scoring primary process manifestations in the Rorschach, parts of which are a direct scoring of libidinal content (1956, 1960). His scoring takes into account two levels of expression. One which he labels "Level I" is a crude, direct, primitive expression of drive and a second or "Level II", is an indirect, controlled, or more socialized expression of drive. Further, he indicates that he has achieved very adequate levels of scorer reliability in the use of this system and points to a number of studies which indicate its value in evaluating psychoanalytic ideas with the Rorschach.

Procedure

The following data were obtained from each subject: age, education, intelligence quotient, the difference between the performance scale and the verbal scale on the WAIS, and the total number of Rorschach responses. The scoring of the Rorschachs by the Holt system produced the following data. (The author was considered a thoroughly informed and tested interpreter of the Holt system, having served as reliability scorer in two previous studies (Cohen, 1960, Zukowsky, 1961). The number of Level I oral responses, the number of Level II oral responses, total number of oral responses, number of Level I anal responses, number of Level II anal responses, the total number of anal responses, and finally, the diagnostic statement in the clinical record was incorporated in a

Method

Subjects

The subjects were 102 male psychiatric patients at the University of Michigan Hospital. Twenty-nine of these were diagnosed by the clinical team as neurotic, 40 as psychotic, 33 as character disorder. The average age of the patients was 32½, the average education was a little beyond high school and the average IQ was 108.

Table 1
Sample

	Mean	Standard Deviation
Age (in Years)	32.4	6.7
Education (Years of School)	12.1	1.4
Intelligence	108.1	5.7

matrix of intercorrelation among all the variables.

Results

Table 2 and Table 3 report the significant correlations which emerged. It should be noted that within the correlation matrix no significant correlations were obtained between the Rorschach variables and age, education, the intelligence quotient, the performance scale minus the verbal scale or the diagnosis.

Table 2
Oral vs. Anal Correlations

	Level I Oral	Level II Oral	Total Oral
Level I Anal	.66***	NS	.39**
Level II Anal	NS	NS	NS
Total Anal	.31*	NS	.27*

Note: NS = Not Significant

* Significant at or beyond .01 level

** Significant at or beyond .001 level

*** Significant at or beyond .0001 level

Table 3
Total Responses vs. Oral-Anal Totals

	Total Responses
Level I Oral	.38**
Level II Oral	.58***
Total Oral	.65***
Level I Anal	.42***
Level II Anal	NS
Total Anal	.31*

Note: NS = Not Significant

* Significant at the .01 level

** Significant at the .001 level

*** Significant at the .0001 level

As might be anticipated, a high relationship existed between the total number of responses (mean total responses was 26, standard deviation of 1.5) and the production of the various psychosexual responses. With the total number of responses held constant, the only remaining significant relationship was that between Level I anal and Level I oral, as reflected in a correlation of .59 which is significant at the .01 level.

Table 4 contains the analysis of mean differences in the production of responses with oral and anal content.

Discussion

Oral responses occurred nearly twice as frequently as anal responses, a difference which reaches a confidence level of .001. (Roughly 2 oral responses per 26 response record to 1 anal response per 26 response record in this sample.) This study does confirm, at least for an unselected adult male psychiatric population, that oral content occurs more frequently than anal content, although this difference is unrelated to diagnosis, education, age or intelligence.

While this difference does hold statistically for the totals (Level I and Level II combined) it is strictly a function of the Level II responses. Level I responses are in fact highly related ($r = .59$) and the t test between them does not reach significance. In examining the raw data of the 102 subjects, 83 had no Level I oral content and 90 had no Level I anal content. Further, the Level I responses that occurred did not relate significantly to any of the additional data collected, including diagnosis.

There is no question that this finding needs to be replicated with a larger and

Table 4

t Tests

	Oral Responses		Anal Responses		t	p Level
	Mean	SD	Mean	SD		
Level I	.30	.075	.15	.047	1.66	.10
Level II	1.81	.202	.75	.115	4.94	.001
Total	2.06	.210	.91	.129	4.68	.001

more broadly based sample. The implication, however, is that the clinical expectation of a higher rate of oral content does not hold in the primitive (Level I) responses. That more modulated content (Level II) does seem to conform to the clinical expectation, raises the question of why one level and not the other. If, as Holt suggests, Level II responses are "more socialized," the greater expression of Level II oral responses may be a function of social convention. One could infer further that, if social perception diminishes with more primitive responses, that this difference in amount of expression of the two kinds of content would also decrease. This remains a question for further research.

A simpler explanation may be that the distinction Holt makes between Level I and Level II responses is not sufficiently refined, at least in terms of the present study, although the work of people like Ackerman (1960) suggests that this distinction is useful in understanding the effects of regression on thinking and that Level II responses do, in fact, reflect in content a more controlled regression. The problem, then, may be in distinguishing among the degree of modulation of content that Holt groups broadly as "Level II." In view of this, it might be appropriate to construct a scale on which oral and anal responses could be ranked from the least through the most socialized and well modulated as a device for further exploring the questions raised in this paper.

Another question raised by the present work, if the difference found here can be replicated, concerns the way a drive is expressed. In short, is the difference in content found here the only reflection of pressure for expression of certain drives, or are there test taking behaviors which are "anal" or "oral" quite apart from the content of registered responses. One can, for example, conjecture that marked departures from modal expectations in the formal aspects of responses such as location and form level could profitably be examined as covert expressions of anal or oral drives.

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Response Inhibition and the Rorschach 'M' Response

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Summary: Previous research indicated that a relationship existed between production of the Rorschach M response and inhibition of motor activity. The present study investigated this relationship under conditions which approximated those involved in the normal process of impulse control. Volunteer college students were used as subjects. Ss who engaged in a response inhibition task subsequently produced significantly more M responses than did Ss who had engaged in a noninhibitory task. This supported the hypothesis that M is an indication of the tendency to deal with impulses through fantasy.

Two previous studies have shown that subjects produced significantly more human movement responses to Rorschach cards following a period of inhibited motor activity than they had to Rorschach cards presented prior to that period (Meltzoff, Singer, and Korchin, 1953; Singer, Meltzoff, and Goldman, 1956). However, the inhibition tasks used in these studies required the S to concentrate on his own movements for a prolonged period of time. Since concentrating on one's own movements may sensitize the individual to illusory movements, this type of task may be introducing a confounding variable. The objective of the present experiment was to induce a temporary state of response inhibition which minimized the need for the S to concentrate on his own movements and required him to voluntarily inhibit a definite response tendency. It was thought that the characteristics of this inhibition task would have a greater similarity to the process involved in the inhibition of impulses in the naturally functioning individual.

Method

Twenty volunteer college students from an introductory psychology course were randomly assigned to either an Experimental or a Control group. After engaging in a 30-minute performance task, each S was administered an individual Rorschach. The Rorschach examiner did not know to which

group any given S belonged.

During the task period, all Ss were informed that they were participating in a reaction time experiment and that they were to reach out and touch specific areas as rapidly as they could each time designated playing cards were exposed. They were told they would have to reach specific criteria for accuracy and speed of responding in order to complete the task. To maximize the Ss' concentration on the task, the subsets of cards to which they were to respond were changed several times during the session.

The Control Ss were required to respond to every card in the deck. The deck of cards was systematically divided into two subsets based on some general attribute, such as red and black, and the Ss were to respond to each subset differently. Unlike the Controls, the Experimental Ss were instructed to respond to only 8 of the 52 cards and to keep their hands absolutely stationary when undesignated cards were exposed.

Results and Discussion

The results show that the Experimental group produced significantly more M responses than did the Control group (see Table 1). However, the Experimental group also produced a greater number of total responses which might indicate that the greater number of M responses was a function of this higher response productivity. Although the difference in total number of responses was not statistically significant, it was

¹ The authors are indebted to Professor A. I. Rabin for his helpful comments.

Table 1

Summary Comparison between Experimental
and Control Groups

	Experimental (N=10)		Control (N=10)		t
	\bar{X}	S. D.	\bar{X}	S. D.	
No. M responses	7.7	5.4	3.7	2.5	3.03*
No. total responses	40.2	23.2	31.3	10.4	1.11
M percentage	20.9	10.1	11.5	7.9	3.24*

*p < .005

decided that a comparison of M percentage would neutralize this effect. The difference in M percentage was also found to be significant.

These results confirm the previous findings that M production is increased following a temporary impulse inhibition set. Since it is felt that the experimental condition imposed in the present study is, in many ways, quite similar to the more general impulse inhibition demanded by society, the results are interpreted as lending support to the commonly accepted hypothesis that M is an indication of a tendency to deal with impulses through fantasy rather than through direct expression.

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Psychological Correlates to Myopia Compared to Hyperopia and Emmetropia¹

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Summary: The relationship between some psychological factors and myopia (near-or short-sightedness) was explored. The hypotheses tested were to demonstrate a characteristic personality pattern of expressing anxiety and hostility. The myopes demonstrated, through the Rorschach Test, the manner of expressing anxiety covertly with a decrease in motor activity, while the hyperopes also demonstrated significant quantities of covert anxiety but with an increase in motor activity. The myopes and hyperopes, when each were compared to the normal-sighted control group, varied significantly less in the expression of non-specific anxiety and hostility. Thus, the findings supported the hypotheses.

Many people are afflicted with a distance blurring of sight which is referred to as myopia, commonly known as near-or short-sightedness, and which generally becomes apparent during the early years of life. This visual anomaly is an affliction which is prevalent in different cultural groups in various proportions. The condition is usually treated mechanically to compensate for the anatomical or structural deviations; i.e., with lenses which correct the refractory state. Myopia is essentially a refractive condition based on a structural or anatomical characteristic, namely, that of an elongated eyeball.

The genesis of myopia has been and still remains to a large measure speculative. There are a number of theories which offer etiological explanations as reviewed in Kelley (1958); however, as with many theories, the experimental findings have not proven to be reliable or adequately validated. The principal theories of causation can be separated into two major categories: (1) hereditarily-determined structural characteristics; and (2) environmentally-determined structural characteristics.

It was not the purpose of this study to establish which physical mechanisms are involved in bringing about the structural changes. Rather, the concern of

this study was only with psychological mechanisms which may be associated with what will be called "normal" myopia; i.e., myopia which is not considered severely pathological and generally within the range of -1/2 to -6 diopters.

Myopia within this range and not diagnosed as progressive myopia is here postulated as a normal psychobiological reaction for some people; i.e., those who also demonstrate a specific pattern of dealing with anxiety. Based upon clinical experience which supports Kelley's (1958) position, the investigator hypothesized a type of personality configuration in which one is prone to react to stress and strain with a series or constellation of tendencies of which myopia is one. In other words, myopia is here looked upon as part of a protective adaptation or reaction pattern, accompanied with anxiety, to stress situations. This pattern may be acquired (partly or in whole) or inherited, but will be consistent with a definite life style or personality configuration.

Kelley (1958) provided some evidence that psychological factors play a significant role in myopia. In a series of experiments using children and young adults, in which he mainly employed hypnosis, direct suggestion and indirect suggestion, he demonstrated that myopia is not a fixed structural condition, as is generally believed by orthodox authorities, but one which varies widely under different conditions. Under his experimental conditions, he showed that these

¹ Taken in part from the dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in the Ferkauf Graduate School of Education, Yeshiva University, New York, June, 1966.

variations could be a consequence of psychological changes; that myopia was made worse by fear or apprehension, and was reduced by lessening apprehension as with relaxation and pleasant imagery.

Another important study dealing with psychological factors is Van Alphen's (1961). Using the Rorschach Test to compare myopes and emmetropes (normal-sighted), his results indicated that the myopes presented a deep-seated anxiety pattern as well as a unique system of abstract thinking.

The main problem of the current study was to investigate some psychological factors which may relate to myopia, specifically the characteristic expression of anxiety and the variability in expressing anxiety and hostility.

The underlying assumption upon which this study is predicated may be stated as follows: The effects of anxiety and hostility are frustration reactions to stress situations, which are alleviated or expressed in different characteristic patterns and which are measurable by psychological tests. Based upon this rationale the hypotheses tested were:

Hypothesis I—Myopes exhibit significantly more covert anxiety with a decrease in motor activity when compared to hyperopes and emmetropes.

Hypothesis II—Myopes and hyperopes exhibit significantly less variability in exhibiting anxiety when compared to emmetropes.

Hypothesis III—Myopes and hyperopes exhibit significantly less variability in exhibiting hostility when compared to emmetropes.

Method

Subjects.

The sample consisted of sixty subjects divided into three groups, all meeting the following criteria: age limits of fourteen to twenty, middle socio-economic level, English-speaking, Caucasian race, average or better intelligence. There were twenty subjects in each group. The first group (experimental group I) consisted of myopes; the second group (experimental group II) consisted of hy-

peropes, and the third group (control group) was composed of normal-sighted individuals. Since myopia appears to be prevalent in males and females about equally, sex was not a controlled variable in this study. The pathological type of myopia, those wearing lenses over -6 diopters, are excluded.

All myopes and hyperopes were screened visually by optometrists or ophthalmologists to meet the criteria set. To ensure normalcy of vision for the control group, each read the standard Snellen Eye Chart under standard conditions for distance vision and the Beren's Accommodation Card for close point normal vision. All myopes and hyperopes could achieve normalcy of vision with corrective lenses, which were required to be worn during the Rorschach examination.

The myopes and hyperopes were volunteers who were patients of the cooperating optometrists and ophthalmologists. The control group (normal-sighted) were subjects available to the researcher from a college population who met the criteria specific to this study.

Procedure.

The Rorschach Test was administered to all subjects individually under standard conditions by the researcher and scored by the researcher. Rescoring was performed by an experienced clinical psychologist.

For the index of covert anxiety with a decrease in overt motor activity a weighted score was derived from the difference of sum c and sum C. For the index of covert anxiety with an increase in overt motor activity a weighted score derived from the sum c¹ was used. Both these indices were obtained following the Piotrowski scoring schema (Piotrowski, 1957).

For the index of anxiety, non-specific in nature, the weighted Elizur Rorschach content test score (Elizur, 1949) was derived and for the index of hostility a weighted Rorschach content test score was also derived.

Measurements of the various scores derived from the indices were used for

the statistical analysis of the data. The "t" test for uncorrelated means and the "F" test were used to test the hypotheses.

Results

The findings indicated that the myopes demonstrated statistically significantly greater amounts of covert anxiety with a decrease in motor activity when compared to the hyperopes and the emmetropes. Thus, Hypothesis I—Myopes exhibit significantly more covert anxiety with a decrease in motor activity when compared to hyperopes and emmetropes—was supported.

Table 1 presents the data used to reflect covert anxiety with a decrease in motor activity for the myopes, hyperopes and emmetropes. The scores were derived from the difference on the Rorschach between sum c and sum C. The

differences in the means between the myopes and hyperopes and between the myopes and emmetropes were tested for significance, using the "t" test, and both were statistically significant well beyond the .01 level.

The myopes and the hyperopes demonstrated statistically significantly less variability in handling non-specific anxiety when each group was compared to the emmetropes for this factor. That is, Hypothesis II—Myopes and hyperopes demonstrate significantly less variability in exhibiting anxiety when compared to emmetropes—was supported.

Table 2 presents the variance for non-specific anxiety derived from the Elizur Rorschach Content Test which when tested with the "F" test indicated that both the myopes and the hyperopes demonstrate less variability in handling anxiety.

Table 1
Covert Anxiety with a Decrease in Motor Activity
Means and Standard Deviations for
A. Myopes and Hyperopes
B. Myopes and Emmetropes

Statistic	Difference between Sum c and Sum C Scores		Significance Test
	A. Myopes	Hyperopes	"t" value
Mean	2.20	-4.48	6.13*
Standard Deviation	3.61	3.20	
	B. Myopes	Emmetropes	"t" value
Mean	2.20	-1.55	3.50*
Standard Deviation	3.61	3.12	

*Statistically significant, $p < .01$.

Table 2
Variability in Non-Specific Anxiety for Myopes,
Hyperopes and Normal-Sighted

Variances			Significance Test
Myopes	Hyperopes	Normal-Sighted	"F" test
17.0		102.6	6.03**
	33.71	102.6	3.04*

**Statistically significant, $p < .01$.

*Statistically significant, $p < .025$.

Comparisons were also made between the myopes and emmetropes, and the hyperopes and emmetropes in respect to variability in the demonstration of hostility as derived from the Elizur Rorschach Content Test. That is, Hypothesis III—Myopes and hyperopes demonstrate significantly less variability in exhibiting hostility when compared to emmetropes—was tested and supported.

Table 3 presents the variances for hostility derived from the Elizur Rorschach Content Test which when tested with the "F" test indicated that both the myopes and the hyperopes demonstrate significantly less variability in handling hostility. For the myopes the level was beyond .01 while for the hyperopes the level was less than .10.

movement component, "M," was made since Piotrowski (1957; Piotrowski & Dudek, 1956; Piotrowski & Shreiber, 1952) regards this component as the most revealing of the deep-seated personality traits, needs and drives which motivate and make the individual a distinct personality. The relevant personality dynamics for the myopes and hyperopes which emerged from the overall analysis of the "M" component were that the myope presented mainly "flexor" and "blocked 'M's'" while those of the hyperopes were mainly "extensor."

Piotrowski (1957) interprets the "M" type as follows: "Three main roles in life can be distinguished by means of the 'M': self-assertion (expansive), com-

Table 3
Hostility Variances for Myopes, Hyperopes
and Normal-Sighted

Variances			Significance Test
Myopes	Hyperopes	Normal-Sighted	"F" value
33.67		116.34	3.04**
	57.79	116.34	2.01*

**Statistically significant, $p < .01$

*Regarded as a trend towards significance, $p < .10$.

From observations which occurred while examining the subjects the following behavioral picture was observed. The myopes generally appeared pleasant, quiet, and cooperative. No outward manifestations of anxiety or hostility were apparent, nor was there any marked emotional expression. By contrast, the hyperopes were rather talkative. At times they exhibited marked restlessness and impatience and made it known whether a task was liked or disliked, both verbally and with various gestures and grimaces.

On the other hand, no typical behavior pattern could be formed by observing the normal-sighted group. Generally no restlessness was observed in this group.

A qualitative analysis of the human

pliance (flexor), and indecisiveness (blocked). The simplest criteria for determining the type of 'M' are the attitude toward the force of gravity and the amount of space occupied."

Discussion

The findings supported the hypotheses. On the Rorschach, myopes and hyperopes presented relatively large quantities of anxiety, which was expressed in a contrasting, characteristic, yet covert manner. That is, the myopes displayed covert anxiety with a decrease in motor activity, while the hyperopes displayed an increase in motor activity.² In addi-

² The Rorschach Test symbol c^1 (Piotrowski, 1957) was used to note covert anxiety with an in-

tion, each group, when compared to the normal-sighted group, demonstrated less variability in expressing non-specific anxiety and hostility.

The relevant personality dynamics for the myopes and hyperopes which emerged from the Rorschach can be summarized as follows: The myopes had a rather high tolerance for anxiety; however, their control could be regarded excessive and resulted in a reduction of motor activity; that is, when in a stress situation they were likely to "sit things out." They were not likely to start anything new or discuss topics which were potentially hostile, disruptive, derogatory, and open to retaliation or attack. In general, it was caution which guided them through life. They were not brave in facing others, but tended to avoid potential enemies and use compromise generously. Even when they did not feel too friendly, they were prone to appear friendly. They tended to mull things over in their minds for fear of acting, and thus to avoid risks, which in turn would deprive them of potential reward. They were held back by hindrances and doubts about purpose. They presented a marked compliance with the forces of gravity.

By contrast, the hyperopes were people who had a low tolerance for anxiety. Consequently, they felt compelled to do something to cut it short, which resulted in the expression of heightened motor activity. As a group they tended to demonstrate greater expansiveness. They were also subject to intermittent depressive moods and appeared to be internally spurred to increased activity. They tended to be accident-prone since they fought the difficulties they encountered and felt more human and important when they took on adversaries (Wilson, Marcus, Kraft, Swander, Southerland & Schulhoser, 1960). The picture they presented was of people who were outgoing and daring, who hardly ever had doubts about the purpose of it all. They ap-

peared self-confident, challenging and courageous. They were not likely to tolerate people they did not like. They were generally the doers, leaders, initiators, and innovators who did not sit passively, taking the hardships of life.

Comparing the two groups, both were characterized by relatively high amounts of anxiety, which was not usually as obvious as it might be in other groups. In other words, the anxiety was covert in both. The myopes might be characterized by flight and the hyperopes by fight.

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crease in motor activity, and tested with the "t" test. The "t" value for the difference between the means for the Myopes and Hyperopes was statistically significant at the .025 level.

Hand Test Indicators of Antisocial Behavior

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Summary: The Hand Test Acting Out Score (AOS) and to a limited degree other scores were studied in relationship to offense type of 614 military prisoners, their subsequent disciplinary problems in adjusting to confinement, and an Army measure of mental ability. Significant differences were observed between the mean AOSs of Ss who had committed offenses against people and against property and between Ss who subsequently were model prisoners and disciplinary offenders. The mental ability measure was minimally related to Hand Test response categories. Considerable overlap was observed in AOS distributions of the varying antisocial groups and the AOS was felt to be of questionable value in predicting individual antisocial behavior in confinement.

The Hand Test is a projective technique consisting of nine cards, each with a drawing of a hand in an ambiguous position, and a blank tenth card. The subjects are shown the cards in a standardized order and asked, "What does this hand look like it might be doing?" Hand Test results have differentiated normals and neurotics from schizophrenics (Wagner, 1961; Wagner, 1962) and have identified overt psychosexual maladjustment in neurotic males (Wagner, 1963), aggressive behavior of institutionalized schizophrenics (Wagner & Medvedeff, 1963), and satisfactory and unsatisfactory Goodwill Industries employees (Wagner & Cooper, 1963). The test has been suggested to have "... special reference to the prediction of overt aggressive behavior" (Bricklin, Piotrowski, & Wagner, 1962), a claim that has been criticized as being unjustified because of the absence of predictive validity studies (Shaw & Linden, 1964). The present study was directed toward this issue and concerns the retrospective and prospective relationship of the Hand Test to antisocial behavior.

Method

The subject pool consisted of 614 Army and Air Force offenders confined

¹The views expressed are the authors' and do not necessarily reflect those of the Department of the Army.

in a military prison. The mean age of the Ss was 22.4 and the mean education was 10.2 years. Hand Tests were individually administered to the Ss at the time of their confinement.² The Bricklin et al., (1962) scoring system was used with the exception of the Acting Out Score (AOS), which was based on the later formula of $AOS = (Aggression \& Directs) - (Affection \& Dependency \& Communication)$. Scoring was performed from lists of responses for each scoring category that were jointly tabulated by the examiners.

There were three aspects to this study. First, three major offense types, totaling 468 Ss were selected from the subject pool. These were: Avoidance Offenders (AWOL, Desertion), Property Offenders (Larceny, passing bad checks), and Person Offenders (Assault, Rape, Murder). It was hypothesized that the Avoidance Offenders would exhibit fewer aggressive responses and have a lower mean AOS than the other groups, and that Property Offenders in turn would have a lower AOS than Person Offenders.

The second aspect involved the follow-up over the entire confinement period of disciplinary problems of the 403 Ss who were released within a one year period following test administration. Hand Test scores were studied with respect to Dis-

²The authors are indebted to Robert H. Rhoads for his assistance in the test administrations.

ciplinary Reports (DR), or major institutional offenses, and Domicile Entries (DE), or minor offenses. DRs are generally indicators of severe and frequently aggressive antisocial acts. An Adjustment Index (AI) was calculated from weighted DR and DE totals, and adjusted for time in confinement. These units were hypothesized to be positively related to the Hand Test AOS measure with Model Prisoners on the AI manifesting the lowest AOSs and Disciplinary Offenders on the AI having the highest scores.

Finally, the Hand Test Scoring categories were correlated with Army Classification Battery General Technical Aptitude Area (GTAA) scores for all Ss. The GTAA is a written vocabulary and arithmetic test that has been observed to correlate highly with Wechsler Intelligence Scale scores (Hedlund, 1959). The GTAA—Hand Test relationship was studied to investigate how much variability in Hand Test scores was due to intellectual factors.

Results

The retrospective study by offense type yielded few differences in Hand Test scoring categories. Table 1 shows the mean number of Hand Test content responses for each offense group and lists the Critical Ratios (CR) used to compare the significance of differences between types. Significant differences between types of offenders on the *Aggression* and *Directs* means were not found, but the AOS mean was significantly higher for Person than Property Offenders. Eight of the 45 CRs were significant beyond the .05 level and six of these beyond the .01 level. Significant differences appeared particularly in the *Tension* and *Cripple* categories, although it must be noted that the mean number of responses in each of these categories is low and includes many protocols with no responses so scored.

The predictive value of the AOS was tested by comparing the AOS distribu-

Table 1
Mean Hand Test Scores and Critical Ratios for
Avoidance, Property, and Person Offenders

Hand Test Content Scores	Avoidance Offenders X(N=270)	Property Offenders X(N=156)	Person Offenders X(N=42)	C R Avoid. vs Pers.	C R Avoid. vs Prop.	C R Pers. vs Prop.
Affection	1.73	1.72	1.38	1.52	.06	1.48
Dependence	.56	.63	.50	.48	.67	1.00
Communication	2.27	2.28	2.07	.75	.07	2.53*
Exhibitionism	.37	.39	.67	1.80	.25	1.65
Directs	1.73	1.69	1.98	1.23	.31	1.32
Aggression	2.35	2.17	2.71	1.26	1.13	1.86
Active Impersonal	4.30	5.88	5.12	1.55	4.16**	1.38
Passive Impersonal	.84	.94	.76	.90	.96	1.06
Tension	.67	.11	.47	5.41**	8.26**	7.20**
Cripple	.92	1.14	.57	2.16*	1.47	3.08**
Fear	.39	.40	.47	.62	.14	.54
Description	.26	.48	.57	1.37	1.16	.38
Fail	.23	.17	.33	.95	.42	1.50
Reaction Time	7.97	8.46	8.59	.62	.86	.12
Response	18.29	18.29	18.57	.25	0	.13
Acting-Out Score	-.36	-.65	.71	1.87	.81	2.60**

* Significant at .05 level.

** Significant at .01 level.

Table 2
AOS Distributions for Adjustment Groups

AOS Range	Disciplinary Offenders (N=114)	Middle Group (N=111)	Model Prisoners (N=178)
12 to 14	0	0	1
9 to 11	1	0	0
6 to 8	4	5	2
3 to 5	23	17	25
0 to 2	39	46	56
-3 to -1	35	35	57
-6 to -4	9	10	30
-9 to -7	3	6	6
-12 to -10	0	1	1
-15 to -13	0	1	0

tions of Model Prisoners, a "middle" group, and Disciplinary Offenders on the AI. It may be observed from Table 2 that very similar distributions are present and that no single cut-off can be established from this data in identifying patterns of institutional adjustment.

The 114 Ss identified as Disciplinary Offenders had a mean AOS of +.25, which was significantly different at the .05 level from the mean AOS of -.80 of the 178 Model Prisoners. The middle groups, whose adjustment was average, had a mean AOS of -.35, which did not differ significantly from the other means.

The comparison of the 42 Ss who had received DRs with the 426 who had not, yielded means of 0 and -.50, and SDs of 3.3 and 3.5, respectively. The difference between the means was not significant. Seventy-nine of the Ss had received neither DRs nor DEs; their mean AOS was -.59 and also not significantly different.

When the Hand Test responses were correlated with the GT measure of mental ability, extremely low and predominantly positive correlations were obtained. The only correlation higher than .10 was that of +.17 between GTAA and *Dependence* responses. This was statistically significant beyond the .001 level.

Discussion

Previous studies of the Hand Test

AOS were supported in the sense that mean differences were found in retrospective and prospective analyses of selected indications of antisocial behavior. Ss confined for offenses committed against persons had a significantly higher mean AOS than those confined for offenses against property; Ss who subsequently were "Model Prisoners" had a lower mean AOS than the subsequent disciplinary adjustment problems.

The usefulness of the AOS would appear to be quite limited, however, when the actual mean scores and the distributions of the groups are examined. The significant mean differences were less than 1.5 on the AOS, and the SDs were consistently around 3.5. Thus the significance of the mean differences may be attributed partly to the fairly large *N*s used and may not be viewed as support of this Hand Test unit as a differentiating measure between antisocial groups. Indeed, examination of the distributions suggested that the AOS failed to distinguish in any predictive, useful sense with respect to the antisocial index studied in this particular prisoner population.

When other Hand Test scoring units were studied in the retrospective part of the investigation, most were not found to be related to offense type. The *Cripple* and *Tension* responses, two infrequently observed categories, were noted to occur more often and less often, respectively, in Property Offenders than in the other

offense types. The Hand Test measures were also not found to correlate to any meaningful degree with the GT score. The statistically significant findings that did occur accounted for less than three per cent of the variance.

The results of the present study must be interpreted in the context of the specific population and measures used. That is, all the Ss had been confined for some law-violating activity and it is possible that AOS sensitivity to select the antisocial individuals may have been lessened by the use of a truncated sample. On the other hand, this population did include Ss confined for serious overtly aggressive offenses that presumably should have been distinguished by the AOS, and the examination of the presence or absence of DRs, a rather direct measure of aggression, yielded similar equivocal results.

Summary

The Hand Test Acting Out Score (AOS) and to a limited degree other scores were studied in relationship to offense type of 614 military prisoners, their subsequent disciplinary problems in adjusting to confinement, and an Army measure of mental ability. Significant differences were observed between the mean AOSs of Ss who had committed offenses against people and against property and between Ss who subsequently were model prisoners and disciplinary offenders. The mental ability measure was minimally related to Hand Test response categories. Considerable overlap

was observed in AOS distributions of the varying antisocial groups and the AOS was felt to be of questionable value in predicting individual antisocial behavior in confinement.

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The Symbolic Process of Recidivist and Non-Recidivist Children as Assessed by the Kahn Test of Symbol Arrangement¹

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Summary: A detailed evaluation of deprived children on symbolic performance and specific levels of adjustment using the Kahn Test of Symbol Arrangement (KTSA) was undertaken. Thirty long-term (Recidivist) and 30 short-term (Non-Recidivist) hospitalized children between 13 and 16 years of age were randomly chosen from a hospital population and compared using the weighted sum of scores of the KTSA. Generally, the findings indicate that children of the Non-Recidivist group possessed significantly greater total weighted symbolization scores than those of the Recidivist group. Of the nine subhypotheses pertaining to specific levels of adjustment, using the symbolization subcategories of the KTSA, Recidivists differed significantly from Non-Recidivists in seven. These results suggest that length of immobilization of children in a hospital setting has a distinct negative effect on symbolization performance, particular perceptual and conceptual processes, and response style.

A number of investigations have been accomplished with deprived and immobilized children, the purpose of which was to grasp the dynamics of their personality structure and the effect of hospitalization and institutionalization on psychological processes over long periods of time. These studies have been reviewed in articles by Bender (1961) and Wright (1959). Results of such research have shown that immobilization of children has had no consistent effect on measured personality variables.

There have been several recent studies dealing with deprivation through hospitalization (Beres & Obers, 1950; Douglas, 1958; Marlens, 1960; Spitz, 1965) which were clearly representative of past research. The last three studies, using projective and objective personality measures, found children reflected diffusely unpatterned, impulsive behavior after being separated from the home environment for long periods of time. These children were characteristically passive-dependent, emotionally apathetic, and developed a high degree of anxiety emerging from unmaturing infantile im-

pulses. Such investigations then concluded that immobilization over an extended period had a significant negative effect on the personality structure of children. The first study (Beres & Obers, 1950), typifying contrasting results, utilized a longitudinal approach. It was found that little personality damage occurred and passable adjustment was made by children who had suffered extended periods of immobilization.

It was apparent then, that should there exist a factor that was consistently influenced by long periods of institutionalization, it did not lie in specific personality variables. Since the criterion on past research was to study the effect of immobilization on specific personality factors, little or no concern was given to the process of symbolization. The principal differences between the present investigation and previous ones were as follows: (a) It was an attempt to provide more cohesiveness to this area of research through inclusion of a more comprehensive variable, that of symbolization, and (b) it was an attempt to provide a more adequate measure of the effects of immobilization through the use of the KTSA. This instrument has been consistently effective in measuring symbolic performance in brain damage (L'Abate, Boelling, Hutton, & Mathews, 1962) and other conditions (Kahn,

¹ This paper is based on the author's doctoral dissertation, submitted to the Graduate School of the University of Oklahoma and written under the direction of Dr. O. J. Ruper.

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Harter, Rider, & Lum, 1956). The purpose of the present study was to determine if length of immobilization in a hospital setting was a significant factor in symbolization performance and perceptual and conceptual processes of children. It was hypothesized that should length of stay in a hospital be an important factor in the symbolic development of children, then a higher level of symbolization would be expected for those children whose confinement is minimal, an accumulation of one day to date (Non-Recidivists), compared to those children whose confinement is extensive, accumulation of over two years to date (Recidivists). In the present investigation, the term Recidivist was used to connote anyone who relapses into a former state or condition, requiring hospitalization. A secondary aim of this investigation was to evaluate specific levels of adjustment (reality distortion, insecurity, degree of concept formation, rigidity, emotional immaturity and apathy, impulsivity, imagination capacity) utilizing the KTSA as outlined in the clinical manual (Kahn, 1957). Consistent with past research on the negative effects of deprivation on intelligence (Goldfarb, 1943; Marlens, 1960), consideration was given to the influence of intellectual factors on the response style of the children administered the KTSA.

Method

Subjects.

A total of 60 subjects (Ss) participated in the investigation. Ss ranged in age from 13 years 1 month to 16 years 11 months, with a mean age of 14 years 4 months. The Ss were randomly chosen from a group of 150 children attending the Children's Medical Center Hospital School in Oklahoma City, Oklahoma. The Ss were divided into two intelligence levels on the basis of their scores on the Otis Quick-Scoring Mental Ability Test. The mean of the average and above average intelligence subgroup (90-130 I.Q.) was 112 and that of the below average intelligence subgroup (30-70 I.Q.) was 59. All Ss of the latter group were judged brain damaged by the hos-

pital psychologist. Random selection resulted in an equal number of Recidivists ($n_1=30$) and Non-Recidivists ($n_2=30$).

Procedure.

Each S of the Recidivist and Non-Recidivist group was administered the KTSA. He was requested to make five successive arrangements of 15 plastic objects on a felt strip which is divided into 15 segments. The S was allowed to choose the position of the objects on the strip for the first two arrangements. His reasons for such arrangements were subsequently investigated. Following the first arrangement, S was asked to name each object and after the second arrangement he was asked to state what each object represented or symbolized to him. The third arrangement involved recall of the second. In the fourth, the objects were placed in order of preference and in the fifth, like the first and second, the S was allowed to place the objects any way he wished. Investigation of the reasons for placement of the three extreme positive and negative choices was made following arrangement four. Subsequent to the administration of the five arrangements and the S's verbal explanations he was requested to sort the 15 objects into eight categories (love, hate, bad, good, living, dead, small, large).

At the completion of the administration, each S will have made 24 verbal responses which were scorable into nine symbolization categories. These categories and related levels of adjustment are presented in Table 1. A total weighted sum of scores for the 24 verbal responses was obtained by the addition of the weighted total subscores for each of the nine categories. A more comprehensive treatment of the KTSA as well as method of administration can be found in the administration manual (Kahn, 1956).

Statistical Design.

The statistical design was carried out in three phases. The first phase analyzed Recidivist - Non-Recidivist differences in measured KTSA symbolization performance on Intelligence and Term of Hospitalization using a two-way analysis of variance (Edwards, 1960).

Table 1

Description of Symbolization Categories and
Related Levels of Adjustment on the
Kahn Test of Sumbol Arrangement

Category	Type of Responses	Level of Adjustment
A	Bizarre, Illogical	Autism, Reality Distortion
B	No Reason, No Symbolization	Insecurity, Hostility, Fear of Self
C	Same as Before	Rigidity, Compulsive & Stimulus-bound
D	Naming or Giving its Function	Resistance, Inhibition, Emotional Immaturity
E	Shape, Material, Looks, Design	Materialistic, Emotional Apathy
F	Color, Absence of Color	Emotional Lability, Impulsivity
X	Form Fidelity	Developing Degree of Imagination
Y	Tangible Abstraction, Freedom from Original Shape & Size	Emancipation from Concrete Stimuli
Z	Intangible Abstraction, Freedom from Material Substance & Shape	Active Imagination, Idealism, Capacity to Substitute

In the second phase, the nine symbolization scores for specific levels of adjustment were evaluated in terms of Intelligence and Term of Hospitalization main effects and their interaction. The average and above average intelligence subgroup and below average subgroup were combined for Recidivists and Non-Recidivists and a two-way analysis of variance was conducted on each of the nine categories. These results were checked using the Mann-Whitney U Method (Siegel, 1956).

The third phase compared the number of responses on the KTSA for those Ss with below average intelligence and those having average and above average intelligence using the Mann-Whitney U Method.

Results

Phase One.

The data for both the Recidivist and Non-Recidivist groups on the KTSA were

evaluated using an analysis of variance. To test for differences between the Recidivist and Non-Recidivist groups, analysis of the total weighted sum of scores for the KTSA was accomplished. Results showed a highly significant Term of Hospitalization main effect ($F=9.34$, $df=1/56$; $p<.01$); Non-Recidivists achieving higher weighted sum of scores than Recidivists. The conclusion was reached that length of hospitalization had a distinct negative effect on symbolic performance as measured by the KTSA. An F of 3.52 ($df=1/56$; $p<.05$) for the Intelligence main effect was not significant, nor did there exist a significant interaction effect ($F=1.41$, $df=1/56$; $p<.05$).

Phase Two.

An analysis of variance was also conducted on each of the nine symbolization scores, the main effects being Intelligence and Term of Hospitalization. The results of the analyses are summarized

Table 2

Summary of Analysis of the Nine KTSA Symbolization Scores for the
Recidivist and Non-Recidivist Groups
(N=60)

Variable	A	B	C	D	E	F	X	Y	Z
Intelligence (I)	N.S.	N.S.	N.S.	N.S.	N.S.	p<.01	N.S.	N.S.	p<.01
Term of Hospitalization (H)	p<.01	p<.05	p<.01	p<.01	N.S.	N.S.	p<.01	p<.01	p<.01
(I) X (H)	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.

in Table 2. It can be seen that the main effect Term of Hospitalization is consistently significant for seven of the nine categories. Accounting for these results is the fact that compared to the Recidivist group, the responses of the Ss in the Non-Recidivist group possessed a higher degree of symbolic content and capacity to abstract. Examination of the *E* and *F* scores showed no significant variability indicating little difference in emotional apathy and liability of Ss of both groups for the Term of Hospitalization main effect. No interaction score was significant and the *F* and *Z* scores were the only variables in which the Intelligence main effect was significant ($p<.01$).

It was decided to perform a nonparametric analysis using the Mann-Whitney U Method (Siegel, 1956) in order to check the results of the parametric analysis (Table 2).³

Phase Three

The Recidivist and Non-Recidivist groups were subdivided into Ss possessing average and above average intelligence (Figure 1) and Ss having below average intelligence (Figure 2) in order to investigate the influence of intellectual factors on differences in raw score responses. Using the Mann-Whitney U Method, the response style of each group is shown in Figures 1 and 2.

³ The Mann-Whitney nonparametric evaluation was performed on the data. The results revealed the same significant differences as were obtained from the parametric analysis of variance. The only exception was that the Mann-Whitney technique detected a greater significance level for all categories. However, factor E and F for Term of Hospitalization continued to reflect no significant difference.

A *z* value of 2.75 reflected a significance ($U=639$; $p<.01$) which indicated that the average and above average intelligence subgroup of both Recidivists and Non-Recidivists possessed a greater number of responses that Ss with below average intelligence. Consistent with the results of the analysis dealing with the abstractive quality of the response, there was no significant difference in the number of responses for category E and F.

Discussion

The primary purpose of the present study was to investigate the influence of long-term hospitalization on the symbolization performance of children as reflected in the KTSA weighted sum of scores. The results supported the main hypothesis revealing marked differences in symbolization scores, the Non-Recidivists achieving a greater level of perceptual and conceptual ability than those of the Recidivist group. Evaluation of Figures 1 and 2 reflect specific shifts in abstractive ability and thinking. It would appear that hospitalization over long periods has a consistent negative effect on the symbolization process in children. Comparative research using the KTSA with deprived children was not available.

If a lack of symbolic progress is indeed a reflection of deficiency in abstractive abilities, thinking, and language development, then it is logical to conclude that this would have a detrimental effect not only on the total weighted sum of scores but also on the individual symbolization categories of the KTSA. The conclusion was borne out and the find-

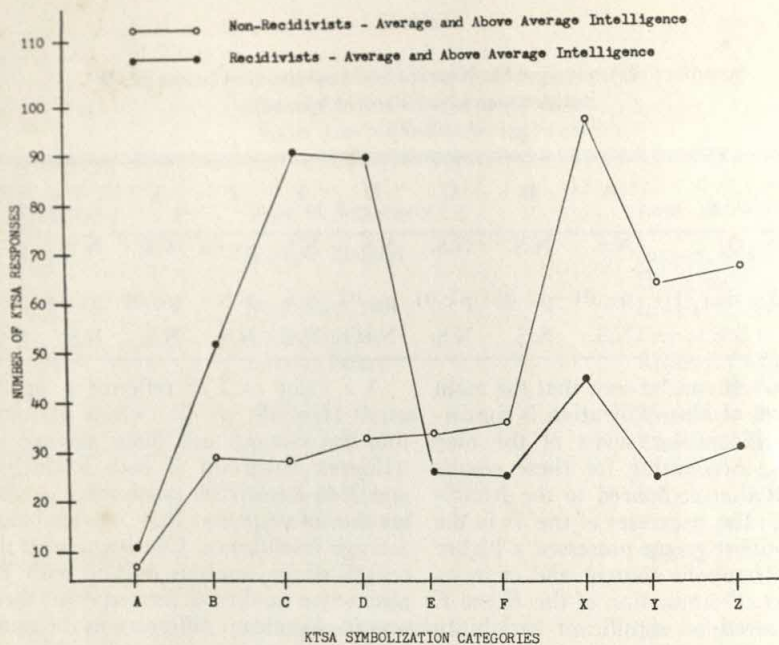


Fig. 1. Number of responses for the nine symbolization categories of the KTSA. (Average and above average intelligence)

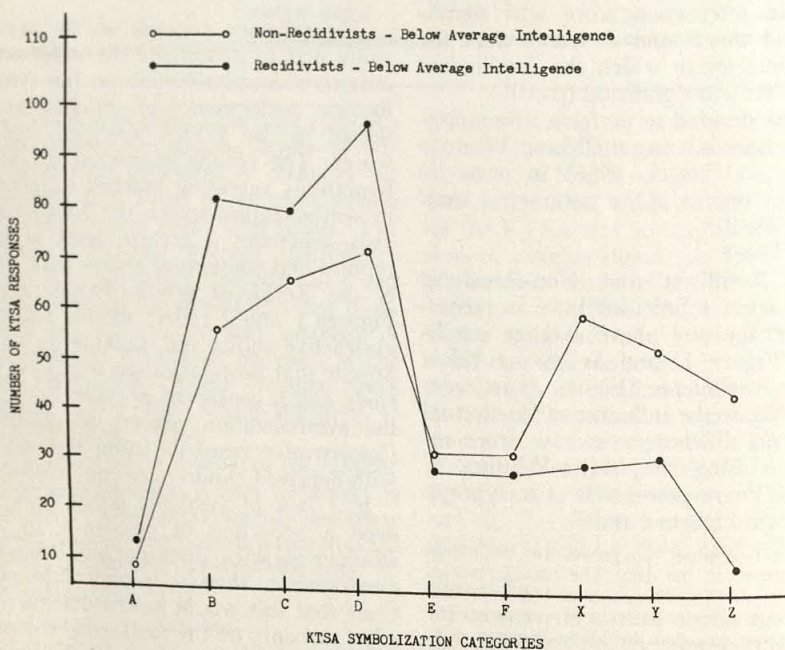


Fig. 2. Number of responses for the nine symbolization categories of the KTSA. (below average intelligence)

ings indicate systematic trends in the direction predicted by much of the research (Douglas, 1958; Fink & Kahn, 1959; Bender, 1961). The Recidivist children were more inclined to distort reality (A) and reflected greater feelings of insecurity and hostility (B) than Non-Recidivists. Marked differences were also noted between the two groups in that responses of the Recidivist group were more concretistic, stimulus-bound (C) and functionally oriented (D) than Ss of the Non-Recidivist group. Conversely, the responses of the Non-Recidivist children reflected a developing imagination (X) a higher degree of abstractive ability and emancipation from concrete stimuli (Y) and a greater ability to deal with their environment (Z) which is consistent with the average developmental process, as reflected in the research of Abidin (1966).

With the influence of long periods of hospitalization on abstractive and adjustment processes being apparent, investigation was made into the effect of intellectual factors on the number of responses for both hospitalized groups. The results confirmed the prediction that children with average and above average intelligence of both Recidivist and Non-Recidivist groups produced a greater number of responses on the nine symbolization categories and total response number on the KTSA than children of both hospitalized groups with below average intelligence.

The present results are corroborative of previous findings relating length of hospitalization with the arrest of specific personality variables (Goldfarb, 1944; Wright, 1959; Marlens, 1960). Also, these findings extend the investigation of the effects of deprivation on specific adjustment processes to perceptual and conceptual processes with the KTSA. It was apparent that the abstractive and symbolic factors measured by the KTSA represent abilities which were not specifically studied in past evaluations of deprivation effects and could offer a more cohesive approach to this research area.

The present study, as an exploratory

evaluation of the effects of long-term hospitalization upon abstractive ability, conceptual and perceptual processes, has yielded promising data. For both Recidivist and Non-Recidivist children, the significant findings are consistent with past research with the emergence of an additional factor, that of symbolization. The findings also suggest a new approach to the study of immobilization in hospitals and other institutions as well as offering new exploration into the versatility of the KTSA in tapping deficiency in symbolic and personality functioning in children. The present data suggest that it would be profitable, in the study of deprivation, to center more attention on the process of symbol formation and the perceptual and conceptual process, thus capitalizing on what may be the only consistently effected variable in the study of immobilization of children.

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A Music Projective Technique

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Summary: Twenty college students and twenty hospitalized patients diagnosed as schizophrenic, equated for age, sex, and intelligence, were told to tell a story to sixteen successive pre-recorded excerpts of music. Tests of reliability indicated that the Ss' reaction times and rates of verbalization were stable from music excerpt to excerpt and from test to retest. Interrater reliabilities of judgments concerning verbal content of responses were acceptable. Analyses of variance indicated the hospitalized group had longer reaction times before verbalization to the music stimulus, spoke less during the music, but more during the interim period between music excerpts. The hospitalized group used significantly less human content and visual imagery, but significantly more animal content than the college group. In general, reaction time was quicker to fast tempo music than slow tempo music, and fast tempo music evoked happier more outgoing themes than slow tempo music. Stories told by the hospitalized group were often highly inappropriate *vis-à-vis* music demands. The instrument clearly differentiated groups.

The purpose of this study is to explore the utility of a music projective instrument as a clinical tool through evaluation of differences in response between a schizophrenic and normal group. The music projective test may be viewed as a subtype of projective instruments which rely upon auditory stimulation.

Auditory projective tests

Auditory projective instruments require the S to verbalize about some sound or sounds in which the incidence of music *per se* is only incidental if present at all. The earliest example of such an instrument is Skinner's "Verbal Summator" (1936), later christened the "Tautophone" by Shakow and Rosenzweig (1940), which required the S to interpret into meaningful words recordings of ambiguous vowel sounds.

An ingenious variation of the above technique is the Azzageddi Test developed by Davis and Murray (1955). The experimenters assumed that "psychically important" ideas are projected into ambiguous spoken passages. Following this assumption, Davis and Murray constructed a sound test comprised of eight ambiguous spoken passages for which the S was instructed to write down the principal ideas.

Stone (1950), Wilmer and Husni (1953), Bell and Bernadoni (1953), Braverman and Chevigny (1955), and Palacios (1959) have constructed tests

which rely on non-verbal sound stimuli. These instruments require the S to tell his feelings, his ideas, or tell stories about various sounds.

One of the more sophisticated of these instruments is that developed by Palacios for blind adults (1959, Husni-Palacios & Palacios, 1964). After the S had listened to a sound segment, he was required to identify the sound and, if he wished, to tell whatever came to mind. A system was developed of rating these responses which is analogous to Rorschach evaluation. Responses are rated on six dimensions: (1) units of thought, (2) concept formation, (3) parts of sound identified, (4) integration, (5) manner of verbalization, and (6) identification of stimulus situation. These dimensions related significantly to job situation for the blind.

Music as a Projective Stimulus

A rationale for what today would be called a music projective instrument antedated the development of both the visual and sound type projective tests. Seashore commenting on musical feeling wrote:

"... an organism sensitive to pitch, rhythm, and time, endowed with serviceable imagery, memory, and imagination ... is practically certain to respond to music with an emotional glow which shall reveal these capacities. It is equally certain that, if any of the basic ca-

pacities are atrophied or inhibited, the emotional expression will be inhibited or distorted to that extent" (1919, p. 266).

More than thirty years later, Cattell wrote:

"On the wide research front which is roughly designated by 'projective tests,' but perhaps more accurately by 'mis-perception tests,' few recent advances have been so promising as that connected with music perception. The powerful and immediate connection of musical stimulation with emotional experience, and the many indicators that unconscious needs gain satisfaction through this medium, have long pointed to measures of musical preference as effective avenues to deeper aspects of personality. Moreover the lack of verbal content itself, on general principles, is a promise that the verbal, cognitive defenses of the censor may be by-passed and the emotional needs probed more directly. . . ." (1953, p. 446).

Unfortunately, Cattell identified preference with the projective concept and thereby failed to explore music as a fantasy stimulus. Nevertheless, his argument is compelling. Music possesses qualities which are particularly evocative of emotional involvement and reverie. Music should provide an excellent stimulus for projective material.

Rationale for a music projective technique

In general, the various sound tests require the *S* to first listen to the array of sounds (music may or may not be used), and then, identify the stimulus and tell his feelings or associations (Stone, 1950; Wilmer and Husni, 1953; Davis and Murray, 1955; Husni-Palacios and Palacios, 1964). These instruments are at least satisfactory in evoking verbalization, although this verbalization is often only the identification of what the *S* thinks he heard rather than the free use of fantasy required in clinical diagnosis.

Since these instruments require verbalization after the sound has ended, the *S* has available no immediate fantasy stimulus. This lack of current stimuli has a somewhat stultifying effect upon imagination for many individuals. The situation is somewhat analogous to pre-

senting a Rorschach card, allowing the *S* to view it for a minute or so, then removing the card, and asking the *S* to tell what he thinks he saw. The anxious individual is likely to find even the task of reconstruction difficult. Factors governing immediate recall and visualization are likely to confound the projective process. These difficulties may be avoided if the sound stimulus is available to the *S* while he is in the process of fantasizing.

The analogue of the fixed visual stimulus for sound is monotone or repetition. But monotone or repetition without variation is likely to be a relatively poor projective stimulus. The staccato of the jack hammer is unlikely to call forth the kind of reflective thinking and emotional involvement experienced in listening to even a simple piano exercise. The former is redundant, but without variation; whereas the latter possesses elements both of redundancy and variation. The variation of the latter is usually the logical and/or emotional outgrowth of its organization. Variation which is random, without relationship to theme is, by definition, noise.¹ Music combines the elements of repetition and change in such a way that the *S* required to verbalize about music is not likely to be overwhelmed by excessive information or bored by redundancy.

The continuity of the musical stimulus insures that the *S* may fantasize some story as the music plays with some confidence that the story once begun will relate to later developments in the music. At the same time, variation of the musical stimulus, e.g., a change in tempo or theme, requires some adaptive response to the ongoing music. In a sense, telling a story to music caricatures the adjustments a *S* makes to other classes of changing stimuli. In driving a car, a *S* turns the wheel, brakes and accelerates to adjust to road conditions, and in conversation, he re-

¹Rorschach required symmetry of his blots as a characteristic of their organization. Such symmetry provided the stimulus basis for organization into "wholes." The music theme and articulation of music developments with this theme performs the same function.

vises his ideas to conform to the demands of the discussion. Telling a story to a changing stimulus implies feedback and self-correction. *A priori* this situation seems to parallel many situations in daily life. Thus, inference from this sort of test to adjustment in certain classes of behavior may be relatively direct.

To summarize the argument for a musical projective test in which the *S* is required to verbalize while the music plays: (1) Music is apparently an excellent stimulus for fantasy production. (2) The task of verbalizing after a sound stimulus has ended often results in mere identification of sound without fantasy production. (3) Redundancy in music insures a continuity of the stimulus so that the *S* is not overwhelmed by excessive change. And, finally, (4) Information concerning the *S*'s response to on-going variation is potentially important diagnostic information, perhaps related to the *S*'s adaptation to change in the real world.

Statement of the problem

Early in 1963, a sample of Purdue graduate students and hospitalized mental patients were instructed to tell a story to prerecorded excerpts of music, each one minute in duration, followed by thirty second silent periods. The silent periods were intended to allow the *S* to complete his story if necessary and prepare for the next segment of music. The subjects exhibited a wide variety of reaction patterns, suggesting that the instrument was sensitive to individual differences.

The responses of the pretest group formed the basis for defining a system of measures of performance. The measures of concern here fall into two categories, *verbal flow* and *verbal content*. The verbal flow measures give an index of the subject's verbalization over time, and the verbal content categories yield an estimate of the subject matter of the individual's verbalization.

The scope of this study is defined by three questions: (1) the reliability of a music projective instrument, (2) the

utility of the verbal flow and verbal content measures in distinguishing two selected groups, and (3) the value of the test as a clinical instrument.

Method

Subjects

The subjects were twenty state hospital patients and twenty freshman and sophomore college students, with ten males and ten females in each group. The state hospital patients were diagnosed as schizophrenic in one of four categories: hebephrenic, simple, undifferentiated, and schizo-affective types. The groups were equated for age and intelligence. *T* tests revealed no significant differences ($P > .20$) between groups.

Materials

Materials in this experiment included a tape recorder and the musical projective test.

The music projective test consisted of sixteen prerecorded one-minute excerpts of music with thirty-second silent periods between each excerpt. The music in order of sequence is as follows:

1. "Younger than Springtime"
2. German Folk Polka
3. Gregorian chant
4. Early American folk song
5. American in Paris
6. Mathis der Maler, Hindemith
7. Polovetsean Dances, Borodin
8. Concerto for violin, Sibelius
9. Octet for wind instruments, Stravinski
10. La Boheme, Puccini
11. Overture to Tannhauser, Wagner
12. Mass, Palestrina
13. Three Madrigals, Martinu
14. Eine Kleine Nachtmusik, Mozart
15. Train ride, cartoon background music
16. Steel Foundry, Mossolov

The excerpts were randomly selected from 4,000 recordings in the Purdue Audio-Visual Library. Inspection of the selected tapes indicated that certain recordings were likely to be familiar to

the average individual. These selections were "Younger than Springtime," the polka, the Gregorian chant, and the folk tune. These tapes were placed at the beginning of the test to give the subject reasonably "easy" stimuli to structure. It was felt that early success would reinforce later effort. The remaining tapes were relatively mixed in order of associative difficulty.

Procedure.

Each *S* was tested individually. The following instructions were read to him:

I'm going to play some music, different kinds of music. Some of it is popular, some of it is folk style, and some of it classical. I want you to tell me a story that goes along with the music. Are there any questions?

Any questions the *S* might ask with respect to procedure were answered by either reiterating the instructions, reassuring the *S*, or telling him, "Any way you like it."

During the test, the experimenter recorded all verbalizations of the subject on a special form divided into fifteen-second time periods.

Fifteen *Ss* in the student group agreed to return in two weeks for retesting. The same procedure was followed.

Scoring Method

The verbalizations of the *S* were scored for verbal flow and verbal content. The verbal flow indices give a measure of the quantity of a subject's verbalization and its occurrence over time. There are four such measures:

1) *Reaction time*: the time in seconds before the subject responds to an excerpt of music.

2) *Response index*: the total number of cells (15 second intervals) during which the subject verbalized while the music was playing.

3) *Word index*: the total number of words the subject verbalized while the music was playing for some unit length of time.

4) *Overlap index*: the total number of words a subject spoke after an excerpt of music had concluded.

The protocols were further evaluated for five categories of content:

1) *Human reference*: the use of a term designating some human being or group, other than the self.

2) *Animal reference*: the use of a term designating some animal or group of animals.

3) *Personal reference*: the use of any term designating the self, e.g., I, me, myself.

4) *Music-centered reference*: the use of any term referring to the music.

5) *Descriptive imagery*: the elaboration of some visualized scene.

The rater scored "1" for every fifteen second interval for verbalizations categorized in terms of one of the above categories. Thus the maximum content score for any excerpt of music for a particular category was four, although more than one content category may have been scored.

Results

Reliability of verbal flow measures

Consistency. A convenient technique for evaluating the consistency of the *S*'s responses is the F derived from the analysis of variance. The inter-excerpt reliabilities were computed separately for the college and hospitalized groups for each of four indices (Table 1). These reliabilities are significant well beyond the .01 level and indicate a high consistency in the *S*'s quantitative pattern of verbalization from excerpt to excerpt.

Table 1

Inter-excerpt Reliabilities
of the Verbal Flow Measures
for the College
and Hospitalized Groups

Measure	College	Hospital
Reaction time	.94	.94
Response index	.95	.91
Word index	.99	.88
Overlap index	.64	.81

Stability. The test-retest reliabilities of the verbal flow measures were esti-

mated by Pearson r correlations between verbal flow scores on tests administered two weeks apart to a group of fifteen students. The correlations and standard error of measurement are summarized in Table 2.

Table 2
Test-retest Reliabilities
of the Verbal Flow Measures
and Standard Errors of Measurement

Index	r	SEm
Reaction time	.92	.17
Response index	.95	.17
Word index	.96	.17
Overlap index	.26	.17

Tests of difference between verbal flow measures for college and hospitalized groups

The analysis of variance technique was used in the evaluation of the response patterns of the college and hospitalized groups. A separate analysis was calculated for each of the verbal flow indicators. In each case, the design of the analysis was a two factor, repeated measures type. Factor 1 was comprised of two levels, the college and hospitalized groups respectively. Factor 2 was divided into 16 consecutive levels, representing equal time periods during the

test. Evaluation of the form of the variance-covariance matrix associated with Ss within groups and Bx subjects within groups preceded pooling of the error terms. These tests were not significant.

Reaction time. The analysis of variance for reaction time is presented in Table 3.

The analysis indicated that reaction times for the hospitalized group were significantly longer to the various excerpts of music than those of the college group. Moreover, reaction time to certain excerpts of music differed significantly independent of group. The Newman-Keuls procedure was implemented to test differences between all pairs of mean reaction times. This procedure yielded five significant differences between excerpts of music. The reaction time to Mathis der Maler was significantly longer than the reaction time to the "Train Ride," the polka, or "American in Paris." The reaction time to Tannhauser was significantly longer than to the "Train Ride" or the polka. The test of interaction was not significant.

Response and word index. Since the results of the analysis of the response and word index paralleled one another, only the analysis for word index is presented (Table 4).

Table 3
Analysis of Variance of Reaction Time
for Hospitalized and College Groups

Source	SS	df	MS	F
Between Ss	115,168	39	2,953	6.5*
A (Groups)	16,943	1	16,943	
Ss within groups	98,225	38	2,584	
Within Ss	102,828	600	171	3.4**
B (Time period)	9,446	15	629	
AB	2,725	15	181	
B x Ss within groups	90,657	570	159	
Total	217,996	639		

* $P < .05$;

** $P < .01$

Table 4
Analysis of Variance of
Word Index for Hospitalized and College Groups

Source	SS	df	MS	F
<i>Between Ss</i>	97,381	39	2,496	
A (Groups)	50,570	1	50,570	41.0**
Ss within groups	46,811	38	1,231	
<i>Within Ss</i>	69,504	600	115	
B (excerpts)	2,703	15	180	1.6
AB	4,853	15	323	2.9**
B by Ss within groups	61,948	570	108	
Total	166,885	639		

** < .01

The analysis indicates that the hospitalized and college groups differed significantly with respect to number of words spoken with the college group verbalizing more. The number of words spoken varied independently from the

music. The interaction between group and time period was significant with the college students and hospitalized patients tending to diverge as the test progressed with the college students speaking more and the patients speaking less (Figure 1).

Figure 1
Means of Word Index by Time Period
for Group Interaction

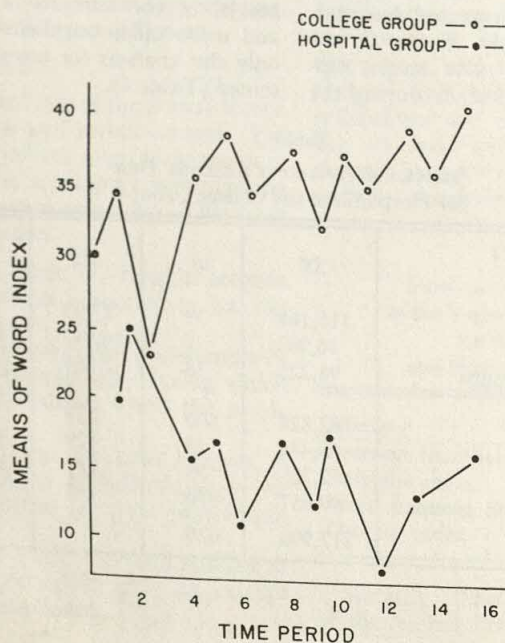


Table 5
Analysis of Variance of Overlap
Index for Hospitalized and College Groups

Source	SS	df	MS	F
Between Ss	40,735	39	1,044	
A (Groups)	5,119	1	5,119	5.8*
Ss within groups	35,616	38	937	
Within Ss	28,365	600	47	
B (time period)	27	15	1.8	NS
AB	849	15	56.6	1.17
B x Ss within groups	27,488	570	48.2	
Total	69,299	639		

* < .05

Overlap index. The analysis of variance for overlap index is presented in Table 5.

The analysis indicates that the hospitalized group tended to verbalize significantly more between excerpts of music than the college groups. This index varied independently of time period. Interaction between groups across time was not significant.

Thematic Analyses Content Categories

The average rater agreement between two raters who rank-ordered each subject on the basis of the frequency of his use of a particular content was .96.

The subject's responses were rank-ordered according to percent of use of content in each of the five content categories. The Mann-Whitney U was used in the assessment of differences between groups (Table 6).

Table 6
Mann-Whitney U Tests
of Content Occurrence
in College and Hospitalized Groups

Category	U	P
Human Reference	57	<.001
Animal Reference	120	<.01
Personal Reference	175	NS
Music-centered Reference	160	NS
Descriptive Imagery	58	<.001

The college group used significantly more human reference and descriptive imagery in their responses, whereas the hospitalized group used significantly more animal references. The groups did not differ significantly in their relative use of personal and music-centered reference.

Projective Stories

The evaluation of projective techniques has been virtually identified with the instrument's ability to draw forth the clinically meaningful story. The judgment as to whether some story is, in fact, clinically useful is a matter of judgment which necessarily makes use of a variety of data and observations about the S. Nevertheless, certain stories may possess a face validity which obviate the necessity for involved analyses. A representative sample of such stories told to the musical projective test are cited below:

I see a woman lying in bed. . . and she's very sick in her home. . . her room is very dark. . . and there is a poison bottle sitting on her bed. . . and she's very disturbed, and she thinks over some of the happier times of her life, and realizes that they won't be there any more (Mathis der Maler: a 22 year old, college female).

I'm out on the streets of St. Petersburg. I'm standing in the middle of the street. I see a lady's husband being run over by a carriage. She is hard up for money —out in the street. She doesn't know

what to do unless she gets some rich guy to take care of her...and then, of course, there are her kids. (Music changes tempo.) Some gypsy comes down the street, incongruous...ironic (Concerto for Violin: a 20 year old, college male).

Once upon a time, there was a little old man who was a watch maker. He was accused of killing a man. When the public arrived, they found the man he was supposed to kill was nobody but himself, so they couldn't punish him (American in Paris: a 20 year old, schizophrenic male).

We are a bunch of bears, and we are going for a picnic in a park. We are German bears. I don't know if that is German or not (in reference to the music). There's little children bears and grandmother bears, and little baby bears, and one of them is chasing a butterfly...and one of them is sitting up to eat by a spring of water (German Folk Polka: a 20 year old, schizophrenic female).

This is my story...program on T.V. The plot is about a person that killed a rich widow woman. No finger prints were found. Nothing except one thing, a silk handkerchief with the initials, C. R. All of a sudden the butler jumps out the window. He did it (Polovetsean Dances: a 19 year old, schizophrenic male).

Sounds like the mad rush of morning, getting dressed, eating. Dad to his job. Kids to school. After all that, mom sits down, reads the paper. Then after that, it's dinner time. Kids come home, in a quarrel. Then after all that kids pitter-patter up the stairs...kiss mom and dad goodnight (Eine Kleine Nachtmusik: a 17 year old, schizophrenic male).

Discussion

The high reliability and stability of reaction time and the verbalization indices, with the exception of the overlap index, implies that these measures are sampling an aspect of information processing and communication governed by mechanisms which are highly regular for the individual (Tables 1 and 2). If a person is slow to respond to one excerpt of music, he is likely to be slow to respond to another excerpt of music; and if he does not say much to one

sort of music, he is likely not to say much to another sort of music. The manner of coping with the music stimulus, as measured by these indices, is more a matter of individual "style" than the nature of music *per se*. The low test-retest reliability for the overlap index may be an artifact of the low frequency of response and constricted variability for college students for this index (Table 5).

Tests of difference between groups

These indices yield measures of the S's volubility, loquaciousness, and alertness in dialogue, providing the parallel of adaptation to changing environmental demands and the changing musical stimulus holds. Since intelligence was comparable between groups, the tendency for schizophrenics to have longer reaction times, to speak less, and to verbalize less as the test progressed appears to reflect their general lack of competence in novel situations, including a failure to learn from experience. This cognitive inefficiency seems intrinsically related to immobilizing emotional factors. In general, as the test progressed, the schizophrenic became notably more anxious, inhibited, and at times, agitated.

The schizophrenics verbalized significantly more during the interim periods while the college students verbalized more while the music played. This result may be partly accounted for in terms of the schizophrenic's lack of appreciation of test demands: some schizophrenics talking from the moment the tape began until it ended and others commencing to tell stories even before the excerpt of music had begun. A significant portion of this group could only verbalize after the music had ended. Forcing limits by repeating instructions only succeeded in making this group more anxious. This behavior is rare among the college students.

The systematic variation in reaction time independent of group was associated with longer reaction time to slow tempo music and quicker reaction time to fast tempo music. In quick tempo

music, the theme usually is stated sooner than in slow tempo music. Hence, the theme or some variation thereof may be an essential prerequisite of verbal response to the music, the *S* requiring some minimum of information to justify response.

The significantly higher percentage of animal responses in the schizophrenic group and human responses in the college group is consistent with the clinical literature about projective testing derived from analyses based on visual stimuli. The fact that these differences were confirmed with an auditory projective technique increases confidence that animal content is intrinsic to the schizophrenic process and human content usually related to healthy adaptation.

Visual imagery responses were particularly interesting since the *Ss* displaying this type of response often experienced immense difficulty in telling the more usual "projective" story with a central hero. Visual imagery is characterized by a series of descriptive statements of the colors, contours, and movements suggested by the music. Often the description seems idyllic, or, at least, romanticised: "a brook, bright, fast moving, and now a bird, with red feathers. . . (told to Eine Kleine Nachtmusik)." These responses occurred only in the college group among *Ss* who apparently were popular with their peer group, or, in some way, creative. One *S*, a female, had been nominated and elected to a number of offices in high school and college. Another *S*, a male, wrote poetry, played piano in a jazz band, and experimented in composition.

Nature of Projective Stories

Among the college students, the themes of stories usually fit the music. Younger than Springtime evokes stories of lovers, the German Polka, stories of dancehalls or celebrations, and Gregorian chant, stories centered around church. When the music implies no content reference within the experience of the *S*, the tempo of the music serves as a cue to structuring stories. Fast tempo music

evokes outgoing, happy themes with stress on physical movement. Slow tempo music is associated with suspenseful, often morose, stories with the central figure usually contemplative or philosophical. Stories told to the slower music roughly correspond in content and form to the more sober stories told to the Thematic Apperception Test.

The appropriateness of stories told by the schizophrenics to music varies in relation to their adjustment at the time of the test. The patients who were more in touch with reality respond to music such as Younger than Springtime, the German Polka, and the American folk song with stories similar to the college group. However, music not readily associated with specific content, whether fast or slow tempo, tend to evoke bizarre stories. Among paranoids, themes are grandiose in nature, and among undifferentiated and simple schizophrenics, themes are dominated by aggressiveness, self-debasement, and self-destruction. The more deteriorated patients often are totally inappropriate even to the music excerpts more readily structured. Their stories are characterized by verbalization unrelated to the task, blocking, and perseveration.

The descriptive analyses of stories told to various types of music implies that music makes certain affective-cognitive demands of its listener, depending on the type of music. Music associated with social interaction and ritual evokes like themes. Fast music is associated with happy, outgoing themes, and slow music with melancholy stories. However, within these general outlines, there is room for considerable individual variation. The schizophrenic is differentiated from the normal by his inability to interpret the demand characteristics of the music beyond types of music associated with social ritual.

Work in Progress

The generalizations and implications of this study are the basis for a revised music projective instrument. The new instrument retains the thirty second pause feature, but music excerpt length

is extended to two minutes. Tempo variation occurs within selected excerpts to evaluate the responsiveness of the *S* to mood and content transformation. The music excerpts are ordered in terms of content, harmonic, and tempo characteristics with the music excerpts progressively less structured. A normative developmental study of responses is in progress.

Summary

Music is potentially an excellent emotional and imaginative stimulus. In a general way, the music projective test may be classified as a sub-type of auditory projective tests, but the music projective technique differs from the usual auditory tests in some important ways: (1) the auditory stimuli comprising the test combine redundancy and variation to insure stimulus continuity, and (2) the *S* is required to tell a story to the music. The music projective technique thus provides potential information concerning the *S*'s adaptation to on going change.²

The music projective test is composed of sixteen one minute prerecorded excerpts of music separated by thirty second silent periods. Exploratory testing provided a basis for the definition of measures of response. The measures which are the subject of this study concern the quantitative pattern and the content of verbalization. Two groups of twenty *S*s, one hospitalized schizophrenic and the other college students, were equated for sex, age, and intelligence. Analyses of variance revealed the hospitalized group had longer reaction times before verbalization to the music, spoke less while the music played, but more between excerpts of music. As the test continued, the patients tended to speak less. Slow tempo music evoked slower reaction times independent of group. Individuals were highly consistent in their quantitative pattern of verbalization from one music excerpt to the next and, gen-

erally, from test to retest. The hospitalized group made reference to significantly more animal content, but significantly less human content and visual imagery during the test.

Certain types of music tended to evoke certain types of stories. The themes of stories for the college students and less deteriorated patients usually articulated with the type of music. Love songs evoked stories of lovers; religious songs, stories centered around church; and folk songs, stories about dances and celebrations. The fast tempo music generally was associated with happy, outgoing themes, and slow tempo music with sad, introspective themes. Within these general limits, however, stories were quite varied. Among paranoids, themes were usually grandiose, and, among simple and undifferentiated schizophrenics, usually dominated by aggressiveness and self-debasement. The stories seemed to possess considerable face validity.

In conclusion, the music projective test appears to be a reliable instrument, useful in differentiating diagnostic groups, and potentially valuable as a clinical tool.

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²Investigators who desire a copy of the Music Projective Instrument for research purposes should send requests to the author.

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The Circles Test: An Investigation of Perceptions of Temporal Relatedness and Dominance¹

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Summary: Perceptions of the relationship of past, present and future and the special significance of any one of the zones is measured in an instrument called the Circles Test which instructs respondents to draw the three zones as circles of varying sizes. A temporal relatedness variable is operationalized as the degree to which circles touch (continuity) or overlap (integration-projection) with one another. Dominance of a zone is defined as its size relative to the other two. In addition, the sense of temporal emergence is examined through a so-called developmental variable. Serving as respondents, Navy personnel indicated that time primarily is atomistic (circles totally unrelated), future dominant (future the largest; past the smallest) and hence future developing. The sexes differ in their assessment of dominance, as size is judged independently by women. Furthermore, among men continuous perceptions tend to reduce future dominance and development. To conclude, temporal relatedness is discussed in terms of its symbolic relevance to perception of causality and change.

The experience of time: an introduction.

Even a limited review of philosophical writings suggests that the understanding of man's perception of time has implications for comprehending the value that he gives to his own life, the meaning attributed to existence, and the reality that there is a universe. The methods and faculties by which we come to know anything are, of course, essential to these implications. Yet as Cassirer (1957, P. 16) wrote, something more may well be involved:

"Highly developed theoretical thinking tends to consider time as an all-embracing form for all change: as a universal order in which every content of reality 'is' and in which an unequivocal place is assigned to it. Time does not stand beside things as a physical being or force: it has no independent character of existence or action. But all combinations of things, all relations prevailing

among them, go back ultimately to determinations of the temporal process, to divisions of the earlier and later, the 'now' and 'not now'. Only when thought succeeds in composing the multiplicity of events into a system within which the particular events are determined in respect to their before and after, do phenomena unite into the form of a totality of intuitive reality."

In disarmingly simpler terms, Morgestern (1960) said much the same thing when he alleged that sophistication about time is sophistication about reality, action and being.

For the behavioral scientist the essential fact is that every man in the development of his private philosophies comes to develop "workable" attitudes and perceptions about temporal phenomena. Moreover, as the philosophical literature makes plain, a man's time perception should affect his perception of and behavior in his environment. Robert Redfield (1953, P. 93) expressed the case for time in this way: "... one must think that every world view included some spatial and temporal orientation: the cosmos has extension, duration and periodicity."

To say the least, temporality has been explicitly incorporated into social psycho-

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logical constructs. As an example, McClelland (1951, P. 486) has asserted that "... it is as if the (achievement) need has served to relate present in terms of a wider context ... Motives seem to tie the present to the future, the specific to the general and long run." A similar but more powerful pronouncement containing the union of philosophical and social psychological implications of time for human behavior is found in this statement of Mowrer's (1950, P. 66): "Time binding, that is, the capacity to bring the past into the present as part of the total nexus in which living organisms act and react, together with the capacity to act in the light of the long-term future — is the essence of mind and personality alike." To make this position even clearer, we need only recall St. Augustine's words (Fraisie, 1963, P. 151) which in effect, presage the most contemporary of existential thought: "The present, therefore, has several dimensions: ... the present of things past, the present of things present, and the present of things future."

It is to this essence that this paper is directed. Of the many qualities of time that could be studied we have chosen primarily one: the sense or perception of the relatedness of past, present, and future. We wish to know the extent to which individuals cohere these three parts of the temporal horizon (Kummel, 1966), that is, "see" for themselves the time binding properties about which Mowrer and McClelland speak. In addition, we will examine some supplemental notions such as the "dominance" or special significance of a time zone and the sense of a direction in the development or emergence of time, from past, through present and on into future.

The paper describes the construction, scoring, and preliminary results from a simple instrument, the Circles Test, which was constructed in order to explore the question of temporal relatedness. Theoretically, it is one matter for psychologists to articulate temporal relatedness between present and future through motives, as McClelland has done,

or between all three zones through the notion of time binding, as Mowrer (1950) and Leary (1957) have done. But whether individuals "feel" or "see" this temporal bindness is something else again. Hopefully the Circles Test provides some information on this subject. How temporal relatedness and dominance relate to other perceptions of time, on the one hand, and to psychological and social psychological phenomena, on the other, remain topics for further research.

The relationships and significance of time zones.

Writing on the "Varieties of Social Time," Georges Gurvitch (1964, PP. 30 - 33) articulated eight forms of micro-group phenomena and their temporal characters. Gurvitch's exposition of social time introduced several imaginative styles of investigation because the form of his typologies, although formulated from social system phenomena, suggests a methodology appropriate for measuring cognitive typologies of time perception. Samples of his conceptualizations depict a rare ingenuity.

1. Enduring time ... The past is relatively remote, yet it is *dominant* and *projected* into the present and the future ...

2. Deceptive time ... In this 'surprise time' a rupture between the past and present occurs, reinforcing *discontinuity* ...

3. Erratic time ... The present appears to *prevail* over the past and future with which it sometimes finds it difficult to enter into relations ...

4. Cyclical time ... The past, present and future are mutually projected into one another with an accentuation of *continuity* and a weakening of *contingency* ...

5. Retarded time ... Future is *actualized* in the present ... No equilibrium between continuity and discontinuity is attained.

6. Alternating time ... Here *discontinuity* is stronger than continuity ...

7. Time in advance of itself ... *Dis-*

continuity (triumphs over continuity)
... The future becomes present ...

8. Explosive time ... Where the present as well as the past are dissolved in the creation of the immediately transcended future. In this time discontinuity (is maximized) ..."

The challenge of such descriptions for one interested in perceptions of the temporal horizon is to create an instrument which elicits the relationships of past, present and future, now employing Gurvitch's terminology. How might one express dominance of a time zone, or how could one represent Gurvitch's metaphoric conceptions of temporal continuity and discontinuity at more personal levels? Could a person draw the projection of one time zone *into* or *onto* another? And what would a person be seeking to communicate in this integration of the horizon that would differentiate him from, say, a person whose conception Gurvitch would call deceptive because of its overriding discontinuity or atomicity?

The variables generated in the Circles Test are the relatedness of time zones and the attribution of a "special" importance or *dominance* to any zone or zones. In order to operationalize such phenomena, the temporal horizon has to be presented such that a "manipulation" of the individual time compartments may be easily accomplished. Really, a respondent needs to be able to play with time zones, to arrange them "in an order", and more importantly to "structure in space" their fundamental relatedness as he perceives it. Simultaneously, individual zones must assume sufficient flexibility so that a person will be tempted and permitted to display a set of attitudes about the past, present and future.

The Circles Test I: Temporal relatedness.

Attempting to avoid any obvious insinuations, the following instructions were prepared: "Think of the past, present and future as being in the shape of circles. Now arrange these circles in any way you want that best shows how you

feel about the relationship of the past, the present and the future. You may use different size circles. When you have finished, label each circle to show which one is the past, which one the present and which one the future." Two key words stand out here. First is *shape* which was intended to connote something other than mere chronological or linear identity. Ideally, such a form promotes variegated attitudes and definitions about time, which can then be represented by utilizing the last message, "you may use different size circles." By emp'ying both space and size, it was hoped that measures of dominance, i.e., individual significance of a particular zone, could be obtained. It was further proposed that relative circle size be used as a measure of dominance.

The second key word, *relationship*, offers an explicit invitation to locate the three time zones so as to represent relatedness of one kind or another. Relatedness was operationalized therefore, as the degree to which drawings showed circles touching one another or, in fact, overlapping partially or completely. Thus, the past, say, might be completely separated off from the present in which case the drawing would be awarded 0 points on a relatedness dimension. Or, it might just touch the present at their respective peripheries (Figure A) thereby earning 2 points; or it might partially overlap with the present (Figure B) thus earning 4 points; or, finally, it might be completely "projected" (after Gurvitch) into the future (Figure C) and hence receive the maximum of 6 points.²

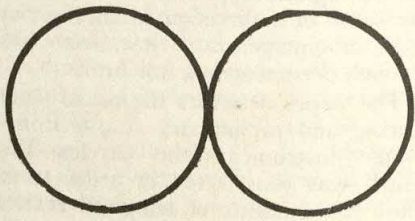


Figure A

² The author wishes to thank Mr. David Segal for his assistance in devising scoring techniques reported here.

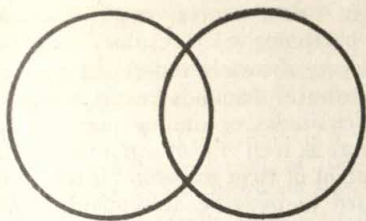


Figure B

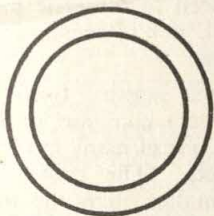
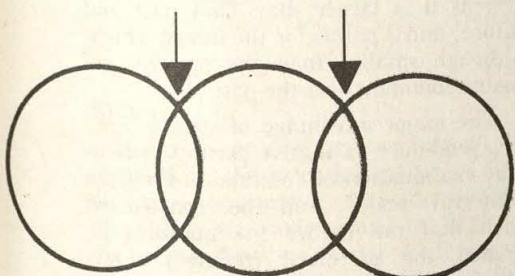


Figure C

A total relatedness score includes in its computation a summation of all three sets of potential "borders": past-present, past-future, present-future; yet it must be noted that a total integration score is not the sum of individual scores. For example, the configuration shown in Figure D would be awarded 8 points. Arrows point to the two regions of overlap, each earning 4 points.



Past Present Future

Figure D

In terms of individual relatedness, observe that past and future earn 4 points because of their singular association with the present, while the present alone receives 8 points because of its associations with both past and future. Individual scores therefore, while clarifying the "positioning" of the integration (in this case, about the present) do not, how-

ever, sum to the 8 points awarded the entire drawing.

Although the degree of temporal relatedness necessarily reflects in an increasing score, one value may actually represent two discrete configurations. For example, 4 points are earned in both of the drawings below.

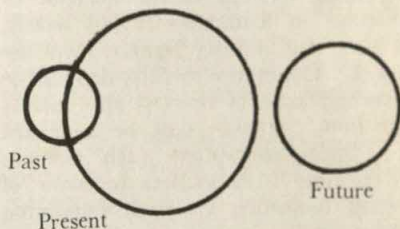


Figure E

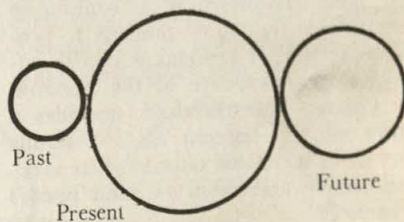


Figure F

By scoring individual circles as well as the total configuration we are able to demonstrate where and to what extent the relatedness occurs. Yet even if this operation were neglected, 4 points would still signify a greater degree of relatedness than 2 points or no points at all.

Scoring the representations in these ways should not obscure the fundamental categories established by circle designs: at the one end, temporal *atomicity* or the absence of zone relatedness; at the other end, temporal *integration* (Murray, 1959) and *projection* (8-18 points) showing partial or total overlap of zones, one onto (or into) another; and finally, the configuration labeled continuity, operationally defined as zones touching but not overlapping hence not "sharing" regions of time between them.

Atomicity corresponds to what elsewhere we have called "temporal bracketing" (Cottle, 1966) for it depicts

"atemporal interstitial" areas lying between the circumscribed zones of the horizon (Fraisse, 1963). Integration and projection, however, might be said to represent a so-called "emergent" perception of the horizon as future and past "turn in on" the present (Heidegger, 1962). Clearly, these are the most spatialized versions of the horizon illustrating in Kummel's (1966) words, the past and future "inherent in the present". Continuity, finally, depicts the proverbial state of time as an "ineluctable flow." It also could be construed as a linear conception, each moment flowing into a bottomless reservoir of ensuing moments, yet each remaining distinct in its passage as in discrete ticks of the clock.

The value of the relatedness dimension, now conceived as a continuum ranging from temporal atomicity to projection, is that it remains a totally encompassing perspective of the horizon. The Circles Test therefore, provides a picture of the horizon as one stands apart from it, indeed outside of its overly subjective and arbitrary (and linear) parameters.

The Circles Test II:

Temporal Dominance:

Included in Gurvitch's writings is the notion of temporal dominance. Ignoring for the moment reasons for its occurrence, dominance should connote an enduring pre-eminence of a unit of time, even though other units occasionally assume transitory (sociological or psychological) importance. American culture for example, in terms of value orientations outlined by Kluckhohn (1961), characteristically sanctions a future orientation or future dominance. Thus, irrespective of those instances or periodic ceremonies when acknowledgment of other zones takes precedence in the structuring of individual and collective behavior, the overarching value of the "main culture" remains one of future preparation and goal directedness.

This is not to say that future dominance, while founded on legitimating so-

ciologic circumstances, might also contain psychological "residues" of past avoidance, themselves deriving not only from cultural demands but from existential vicissitudes or unique personal persuasions as well. From a purely intellectual point of view therefore, it would not be hard to imagine an individual proclaiming an "equality" of dominance among time zones, but such an individual would need to reconcile preeminent psychological, not to mention socio-cultural processes.

An extremely sensitive twelve-year-old boy who did not take part in the study, provided but one of many interpretations of dominance: "The past," he said, "must be smaller than the future because it's completed; it's over, but the future is forever."

Like relatedness, temporal dominance is scored by examining each zone *vis a vis* the other two. Specifically, a circle receives 2 points each time it is visibly (and assumed intentionally) drawn larger than another. Configurations like those shown in Figures E and F would be scored as follows: 0 points for the past since in size it surpasses neither present nor future; 4 points for the present, as it is larger than both past and future; and 2 points for the future which, although smaller than the present, remains dominant over the past.

The major advantage of such a scoring procedure is that it permits a two-way examination of dominance. First, an "interval scale" can be constructed such that the higher the number the greater the perceived (relative) dominance of the zone. This makes it possible therefore, to rank zones on the basis of dominance so that Figures E and F might then be described, using Kluckhohn's signature, Present > Future > Past.

A second scoring technique uses a principle of categorization. With this method, a configuration is classified in terms of the presence of characteristic dominance patterns. Now, 0, 2 and 4 points indicate category headings with 4, irrespective of its rank importance, designating the dominance category and 2

designating so-called secondary dominance or the "zone of intermediate-ness".

Subjects

The Circles Test is but one instrument included in a larger study of time perception. Four hundred twenty-eight men and 102 women from a midwest Naval Training Station took part in the study. At the time, they were involved in a voluntary 14-week Hospital Corpsman training program. Tests were administered to groups comprised of official Navy companies (averaging about 46 people) during regularly scheduled class periods.³

Subjects, whose modal age was 19, for the most part represented lower-middle class families from large cities rather than rural areas. Almost all were high school graduates, very few having had any college experience. Most were either Protestant or Catholic and less than four percent were married.

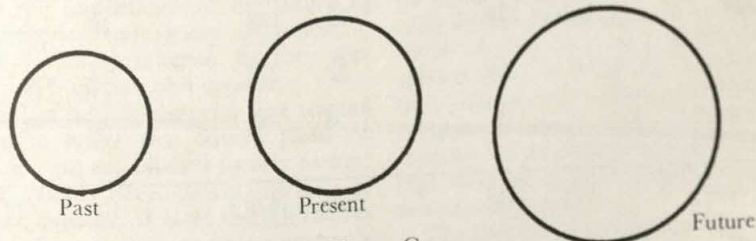


Figure G

Results.

Before examining performance on the instrument, the essential matter of validity must be mentioned. Some measure of validity was ascertained by instructing respondents to write a few sentences describing their intentions while drawing the circles. The most frequent response was that proximity of circles was in fact, intended to demonstrate relatedness and that size primarily stood for importance or salience rather than spatialized representations of chronology. This last finding was not surprising as a previously administered instrument had

explicitly instructed subjects to mark off purely chronological quantities (Cottle, 1966).

The most popular configuration drawn (Figure G) is atomistic and, using Kluckhohn's typology, Future > Present > Past.

That atomicity generally takes precedence over continuity and integration-projection is evidenced in Table 1 which illustrates too, that women only barely (but not significantly) exceed men in their expressions of an atomistic horizon.

The male and female means are respectively, 3.86 and 3.15. But, as the percentage distributions would suggest, a significant difference in mean scores does not result ($t=0.41$).⁴

The prevalent conception of time zones continuously enlarging as one moves from past through present to future is demonstrated by looking at the progression of underlined percentages in Table 2.

In size, the past emerges as the least salient zone for both sexes. Moreover, although agreeing on the extent to which the present assumes dominance, women show a tendency to make present dominant over past more often than men, the difference amounting to some 15%.

⁴ To test whether intelligence effects perceptions of relatedness, intelligence scores based on the Army General Classification test were correlated with the relatedness variable. In this test, I.Q. represents the sum of verbal and mathematical aptitudes. No significant correlations were obtained ($r=.10$ for men; $r=.08$ for women). A cross tabulation between the relatedness typology and high, medium and low intelligence groupings also was computed, primarily to learn whether continuity perceptions alone might vary from atomicity and integration designs, but the Chi-Square values again revealed no significant levels of association ($X^2=3.96$ for men; $X^2=2.86$ for women for 4 degrees of freedom).

³ Mr. William Bezdek of the University of Chicago must be thanked for his collaboration in the data collection.

Table 1
Frequency Distribution of Temporal
Relatedness Scores

Temporal Relatedness	Males		Females	
	Percentage	Number	Percentage	Number
Atomistic	60	256	65	66
Continuous	27	115	26	27
Integrated-Projected	13	57	9	9
Totals	100	428	100	102

Table 2
Frequency Distribution of
Dominance Scores

Dominance	Males					
	Past		Present		Future	
	Percentage	Number	Percentage	Number	Percentage	Number
Absence (0 points)	<u>65</u>	276	39	168	20	87
Secondary (2 points)	27	116	<u>52</u>	222	14	59
Dominance (4 points)	8	36	9	38	<u>66</u>	282
Totals	100	428	100	428	100	428

Dominance	Females					
	Past		Present		Future	
	Percentage	Number	Percentage	Number	Percentage	Number
Absence (0 points)	<u>22</u>	73	23	24	26	27
Secondary (2 points)	22	22	<u>67</u>	68	9	9
Dominance (4 points)	6	7	10	10	<u>65</u>	66
Totals	100	102	100	102	100	102

Thus, while the modal signature of dominance remains Future > Present > Past, a small population of men exhibit a Future > Past > Present horizon.

In order to determine whether this deviation is related in any way to temporal

relatedness, a correlation matrix of the four Circles Test variables was computed. (See Table 3).

It turns out that for men the deviation of dominance is not significantly associated with relatedness. For women how-

Table 3

Intercorrelations of Circle
Test Variables

	Relatedness		Past Dominance		Present Dominance	
	Male	Female	Male	Female	Male	Female
Relatedness	---	---				
Past Dominance	-.10	.04	---	---		
Present Dominance	.01	.05	-.32*	-.18	---	---
Future Dominance	-.18	-.38*	-.38*	-.12	-.20*	-.11

* $p < .01$

ever, relatedness decreases as a function of future dominance; the greater the importance attributed to the future, the more atomistic the horizon.

It should be recalled that in these correlations variables are scaled such that the higher the number the greater the relatedness or relative dominance of a particular zone. Women therefore, either reduce the importance of the future as they integrate time zones or render it greater (relative) salience as they separate it off from past and present.

This last finding suggests that women hold to a belief that future plans or ideals are not established merely as part of any natural development intrinsic to past and present. It is as though the reduction of integration reveals a woman's desire to alter existing directions and eventualities. If events truly occur continuously or progressively "in time", if moment really follows moment and the content of today really predetermines tomorrow's structure, then the future, characteristically the most dominant period, tends to diminish in importance.

Men show future dominance to be a conception almost equally represented in atomistic and integrated drawings. It is however, the man holding to a continuous view of time who most often designs both present and past larger than future.

Unlike women, these young men perhaps maintain their sense of a personal or even global evolution as they formulate future goals, dreams and intentions. That the correlation between the degree

of relatedness and future dominance is not significant ($r = -.18$) should not obscure the fact that perceptions of continuity tend to discourage future dominance.

An essential feature of dominance is that any zone may be awarded primary, secondary or tertiary significance. The correlations and cross tabulation presented so far indicate that men systematically manipulate dominance of each zone *vis a vis* the other two in a way that women do not. This fact alone implies that irrespective of their perceptions of relatedness, men consider all three zones together as they compute dominance ratings whereas women independently treat one zone at a time.

The theme of relationships between relatedness and dominance is carried one step further with the discovery that among men, continuity confers either the most or the least significance on the present.

Apparently, linear time renders the present the essential, or as Bergson (1910) called it, the "vital moment", or denigrates it altogether by establishing it as an unfortunately unavoidable bridge connecting past and future. As one young respondent said, the irony of the bridge is that the present happens so quickly "that you almost don't see it." Even though we live only in the present, just about the time we say now, the moment has passed and we are confronted with the next now. Hence, the present seems to contain only two of Augustine's dimensions, the "present of

Table 4

The Effect of Temporal Relatedness on Future Dominance

Future Dominance	Males				Females			
	Atomistic	Continuous	Integrated-Projected	Percentage X ²	Atomistic	Continuous	Integrated-Projected	Percentage X ²
Absence (0 points)	18 ^a	36	22	23.6	21 ^a	41	33	27.5
Secondary (2 points)	17	15	19	16.9	18	7	11	14.7
Dominance (4 points)	65	49	58	59.4	61	52	56	57.8
Total	146	67	41		66	27	9	
Percentage	57.5	26.4	16.1		64.7	26.5	8.8	

a Refers to percentage of respondents in the particular category.

b $p < .10$ (4 df).c $p = n.s.$ (4 df).

Table 5
The Effect of Temporal Relatedness on Present Dominance

Present Dominance	Males				Females			
	Temporal Relatedness				Temporal Relatedness			
	Atomistic	Continuous	Integrated-Projected	Percentage X ²	Atomistic	Continuous	Integrated-Projected	Percentage X ²
Absence (0 points)	40 ^a	48	34	41.3	25 ^a	22	11	23.5
Secondary (2 points)	48	36	61	46.9	67	63	78	66.7
Dominance (4 points)	12	16	5	11.8	8	15	11	9.8
Total	146	67	41		66	27	9	
Percentage	57.5	26.4	16.1		64.7	26.5	8.8	

a Refers to percentage of respondents in the particular category.

b $p < .10$ (4 df).

c $p = n.s.$ (4 df).

things past" and the "present of things future".

Temporal development.

In comparing the drawings of men and women, one central difference between them was found, namely that the Future>Past>Present dominance arrangements, although common among men, was for the most part absent in women. This tentatively male "present insignificance" previously has been reflected as well in an experiential inventory which instructed these same respondents to list the ten major experiences of their lives and then insert the experiences into a 5-point matrix of time: distant past, near past, present, near future and distant future (Cottle, 1966). What emerged in this earlier study was that 23% of the women failed to list even one present experience, while as many as 42% of the men showed present experience omissions. With a fleeting present, one apparently is unable to deposit anything meaningful into it.

On close inspection, each of the popular feminine representations, irrespective of the degree of relatedness, demonstrates rather than a "present insignificance" something that might better be called temporal *development*, i.e., a funneling of time either from past through present and on into future, or *vice versa*. Development communicates a perception of the horizon as gradually opening up or closing off as one moves chronologically "forward" in time. Closing off, which might technically be labeled "past dominant development", corresponds somewhat to the time of an hour glass in that time is seen as running out. An outstanding feature of this conceptualization is that it goes against the anticipated chronological "grain" of a twenty-year-old. The former conception, "future dominant development", might point to a rather optimistic perception of the horizon, one in which drawings depict personal development and experiential expansiveness.

Whereas past dominant development connotes a movement toward a shrinking end and away from an expansive beginning, future dominant development

expresses an opposite tendency, namely the growth toward an "explosive" future or a movement away from a meager beginning. It is tempting to call development with future dominance "life orientation" and development with past dominance "death orientation" but such labels confer an unjustified complexity on these humble circles. Perhaps optimism and pessimism are more appropriate dimensions.

For a configuration to qualify as developmental, circles must be of three different sizes with the present always the second largest. The development variable therefore, summarizes all three dominance variables so that the results in Table 6 compress the data in previous tables.

Continuous horizons tend to discourage development among men (while integrated-projected ones encourage it) despite the fact that the marginal percentages reveal women's somewhat greater preference generally for a developmental horizon. The table incidentally, makes no distinction between past and future dominance in developmental trends but the correlations between development and future dominance ($r=.61$ for men; $r=.68$ for women) make it clear that development typically assumes future unfolding.

Discussion.

The Circles Test has been seen to differentiate respondents in terms of their symbolic preferences for linear or spatialized time (Kummel, 1966) and their perceptions of the relatedness of the temporal horizon. For some, past, present and future are utterly disconnected constructs or spaces, or even words. Nothing binds them together other than an over-arching loyalty to order. For others, the horizon is visualized as successive "now points" which form a queue of potential, occurring and prior lived experiences. To be sure these points touch but the very concept of the finite space of a moment prevents any experience from occupying more than its own "authorized" momentary space in the queue.

Table 6
The Effect of Temporal Relatedness on Development

Development	Males				Females			
	Temporal Relatedness				Temporal Relatedness			
	Atomistic	Continuous	Integrated-Projected	Percentage X ²	Atomistic	Continuous	Integrated-Projected	Percentage X ²
Absence	55 ^a	69	49	57.7 } 5.01 ^b 42.3 }	39 ^a	48	44	42.2 } 0.62 ^c 57.8 }
Presence	45	31	51		61	52	56	
Total	145	67	41		66	27	9	
Percentage	57.3	26.5	16.2		64.7	26.5	8.8	

^a Refers to percentage of respondents in the particular category.

^b $p < .05$ (2 df).

^c $p = n.s.$ (2 df).

For a third group of respondents, relatedness transcends linear or chronological restrictions. For these people, "now points" overflow their appointed spaces; moments come to share the space of other moments as in the integration configuration, and in some instances co-occupy spaces as in the case of projection.

Furthermore, there are variations in development: whereas some make the present a preparative bridge to the future, others make it the most significant zone, a hub connecting the spokes of past and future. The former arrangement may symbolize what Kluckhohn (1961) has called a *becoming* orientation as all "roads lead to the future", while the latter drawing, emphasizing present salience, symbolizes a *being* orientation in which one invests all energies in immediateness with less of an eye to preparation.

These notions are conjectural of course, for a becoming orientation also could be represented by the combination of present insignificance and future dominance. Here a respondent communicates his impression that with a goal-directed orientation, the present must be quickly discarded so that all eyes may turn again to the future.

The data regarding atomicity lend some confirmation to the earlier finding that in terms of duration calculations (Cottle, 1966), the horizon of time appears bracketed as it is seen to possess intermittent zones or blocks of time remaining separated by mysterious timeless spaces (Fraisie, 1963). In such a conception one gets the impression of a childlike version of time in which day-by-day units are reported as discontinuous, so that chunks of time called day remain separated from preceding and consequent chunks by something called night, or more accurately, sleep. When one awakens therefore, a whole new period, the day, containing its own privately historical parameters commences and in its existence, beforeness and afterness are severed or neglected if not forgotten entirely. The expression "tomorrow is another day", often implying a literal

starting all over again, is precisely the microcosm of this perception as it applies to the total horizon.

If the analogy is meaningful, the atomistic perception tentatively mirrors an ahistorical orientation for in many respects tomorrow is another day and a whole new world of potential experience does come forward. But it is a somewhat externalized world being reflected, one which appears to deny personal evolution, competence, control—or more simply, past preparedness and development (White, 1959; Muller, 1966).

Men and women holding to an image of time as a moment-to-moment affair do not develop a sense of an unfolding horizon to the extent demonstrated by those with either atomistic or integrated perceptions. It is the segmented quality of time, the discrete yet continuously coupled sense of "now points" or clock ticks that contributes to the reduction of future dominance but, in the case of men, a corresponding increase in present dominance.

In contrast, the absence of systematic relationships between past, present and future dominance among women initiates a proposition that women do not view the salience of one zone as a function of any of the other two. The absence lends support moreover, to the argument that size represents something beyond chronology.

Temporal atomicity therefore, intimates at a functional as well as spatial independence of time zones, a perception reminiscent perhaps of more comprehensive atomistic-gestaltist perceptions. Yet the past, present and future, just as a few months here or a few months there, are never blocks of random time for if only linguistically, they connote an inherent logic essentially defined as serial. Indeed, randomness is temporal both in nature and origin; thus, independent assessments of past, present and future should be predicated at least on temporal ordering.

Regardless of why it occurs, atomicity denies not only relatedness but the sequential hence causal nature of the horizon. It would make little sense to put fu-

ture before present and not surprisingly no one did. Yet, if the zones are unrelated and, furthermore, independently assayed, then what may underlie the correlations is women's failure or reluctance to acknowledge the temporal structuring of events and experiences. Novelty or even more profoundly, change, now to be conceived as the cracking of temporal patterning or the dissipation of a sense of emergence, becomes a more prevalent predisposition for women if it is true that men adhere to the internal (and causal) logic of time ultimately binding together the entire horizon.

Or perhaps just the opposite is true, for lacking the internal logic of time's linear and spatial features eliminates a propensity for genuinely knowing the phenomenology of change.

Although for a few persons size may mean nothing more than a graphic representation of years, configurations specifically atomistic and developmental somewhat confirm Kluckhohn's (1961) findings about American values and Edward Hall's (1959, P. 29) perhaps overly simplistic thought that "not only do we Americans segment and schedule time, but we look ahead and are oriented entirely toward the future."

The contributions to our understanding of time orientations now as values can be misleading however, for temporal orientations cannot be monotonic since human activity involves aspects and features of pasts and presents and futures. That future dominance is prevalent probably means that these students are indeed "oriented almost entirely toward the future". But even the minimal amount of data presented compel us to underscore Hall's words "almost entirely". In sum, overly simplistic temporal typologies may be more dangerous than instructive. The fact that our gaze may be predominately on the future so that our presents and pasts become clouded by, indeed absorbed into our expectations, must not obscure those moments when attitudes and actions become controlled by prior and contemporary impingements and vicissitudes.

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The Relationship Between Two Measures of the Tendency to Give Socially Desirable Responses¹

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Summary: Two measures of the tendency to endorse socially desirable (SD) responses were obtained for 137 Ss. The first was from Edwards' SD scale and the second from an experimental scale consisting of responses in the P-F Study for which ratings of SD were available. There was no significant correlation between these measures. A second group of 94 Ss then rated a sample of 10 items each from the 2 scales on six bipolar dimensions. It is concluded that there is agreement across Ss as to the connotations of a socially desirable response but that personality type statements differ from responses in social situations in respect to the measure each provides of a person's tendency to endorse SD responses.

Whitman and Schwartz (1966) have shown that when persons rate a variety of responses in the Rosenzweig P-F Study (Rosenzweig, Fleming, & Clark, 1947) on a 9-point scale of social desirability (SD), there is considerable agreement in the ratings assigned to these responses. Also the mean or average of these ratings for each response provided a social desirability scale value (SDSV). These values were positively correlated with the probability of endorsement of the responses when these responses were presented to other Ss. The positive correlation between SDSV and probability of endorsement values was originally reported for personality items by Edwards (1953); and his findings have been confirmed in subsequent studies (Edwards, 1965).

The extension of the concept of SD to responses in social situations raises two questions of significance for the interpretation of SD. The first relates to the meaning of SD in the two contexts, namely self-descriptions and descriptions of one's responses to other persons. To

the extent that statements in the two contexts are interpreted by Ss as having the same meaning when these are socially desirable and also when they are socially undesirable, the generality of the concept of SD is increased.

The second question arises from the interpretation of a person's tendency to endorse SD responses as a personality characteristic with which other behavior may be associated. The relationship between measures of this tendency in the two contexts has not been determined. These two questions form the basis for the present study.

Method

Three experiments were conducted each with separate groups of Ss. All Ss were students in undergraduate courses in two small liberal arts colleges who had volunteered for a battery of personality tests. Ss were examined in groups.

In Experiment I, 137 Ss (56 male and 81 female) were administered two scales measuring the tendency to give SD responses. The first was Edwards' SD scale (Edwards, 1957). All 39 items in this scale are keyed according to SDSV; and S's score is the sum of the number of items with high SDSV which he endorses as true as applied to himself plus the number of items with low SDSV

¹ The authors are indebted to Mrs. Hildegund Holloway who assisted in the collection and analysis of the data. Also, they wish to express their appreciation to the Western Research Support Center, V. A. Hospital, Sepulveda, California, for programing and performing the computer processing of the data.

which he indicates as false. All items are self-description statements. As the second scale, the one which measured the tendency to give SD responses in social situations, 69 cartoons (23 different ones, each presented three times) from the P-F Study were used. Each of the 69 contained a different response typed in the blank spaces provided in this material. The selection of the replies, the sequence used, and details on the method for presenting this material were the same as those used for determining the SDSV of these replies and is described elsewhere (Whitman & Schwartz, 1966). Ss were shown the cartoons, one after the other, and they indicated for each cartoon whether or not they would be likely to make the reply displayed. SDSV for all of the replies were available. Ten replies for which SDSV's were in the neutral range were not used for scoring, and the remaining 59 were keyed in a manner similar to that used for Edwards' SD scale. S's score on this scale also was the sum of the number of items with high SDSV endorsed by S as ones which he would be likely to make in the situations depicted plus the number of replies with low SDSV which he indicated as ones which he would not be likely to make. In this experiment, therefore, two measures of the tendency to endorse socially desirable responses were obtained for each S.

In Experiment II, 94 Ss (40 male and 54 female) scaled a sample of 10 items from the Edwards' SD scale and also a sample of 10 responses from the P-F Study used in Experiment I, on six bipolar dimensions. The sample included an equal number keyed "True" and "False" in each group.²

The six bipolar scales were the following: (1) good-bad; (2) weak-strong; (3) wise-foolish; (4) passive-active; (5) healthy-sick; and (6) ineffective-effective.

² The items from the Edwards' SD scale were randomly selected with this restriction. Since the items from the P-F Study were to be shown without the cartoons, a random selection of items was made and keying was based on the percentage of endorsement values obtained in Experiment III. These values were ranked and the items with the five highest values were keyed "True".

The orientation of these scales from left to right on the answer sheets was as indicated. Also, a line of seven distinct dashes separated the two adjectives in each pair and S indicated his rating of an item on the scale by a check. The position of his mark was later given a number from 1 to 7 for scoring. Ss were given instruction and practice in the use of a 7 point equal interval scale and then rated the 20 items one at a time on all six scales. In order to avoid a possible tendency to rank the statements rather than to assign scale values to these, S rated the first item on all six scales oriented as described above and then rated the next item, etc. The sequence of items was the same (Part A, then Part B) for all Ss. Ss were allowed sufficient time for completing the ratings of all of the statements on all of the scales. A mean rating on each of the six bipolar scales for each of 20 items was thus obtained. These mean values for the five items representing the two levels of SD for each of the two types of statements provided comparisons of the meaning of self-description statements with the meaning of statements representing responses in social situations both when these are ones keyed "True" and also when these are ones keyed "False".

In Experiment III, 401 Ss (156 male and 245 female) were shown the 20 statements used in Experiment II and indicated for each whether or not the statement was true or false as applied to themselves. The grouping and the headings were the same as those used in Experiment II, and the sequence used for the statements was the same. Since the statements were not presented with the full scales, the 20 statements were keyed for SD on the basis of probability of endorsement values obtained for this group.³ Each S received two scores, one indicating the number of SD responses endorsed in the first 10 items and the second indicating the number of SD responses endorsed in the second group of items. The correlation between the scores in Part A and those in Part B provided

³ For the items from the Edwards' SD scale, the keying was identical with that for the full scale.

a measure of the comparability of material used in Experiment II with that used in Experiment I.

Results and Discussion

Table 1 shows the mean and σ_m for the scores of the Ss in Experiment I for both the Edwards' SD scale and the experimental P-F Study SD scale. The product-moment correlations between these scores were: for males, .18; for females, .08; and for the combined group, .12. None of these correlations is significant ($P > .05$); and the conclusion is that the tendency to endorse SD responses when these are self-description statements as measured by the Edwards' SD scale is not correlated with the tendency to endorse SD responses in social situations as this tendency is measured by the experimental P-F Study SD scale.

In Experiment II samples of statements from both scales were rated on six bipolar dimensions. The mean rating on each dimension was determined for those items keyed "True" and those keyed "False". Separate values were obtained for Parts A and B. These means are plotted in Fig. 1. With each bipolar dimension, 20 values (one for each item) were assigned by each S. The analysis of variance for correlated measurements was accordingly used to evaluate the significance of differences between the means for the different categories of items on each of the six dimensions. The $P < .05$ level was used; df's for all compari-

sons were 1/1767. For the Edwards' SD scale, those statements keyed "True" differed significantly from those keyed "False" on all six dimensions. With the exception of the "active-passive" dimension, the significant differences for the statements from the P-F Study were the same as those for the SD scale. On the "active-passive" dimension the two classifications did not differ significantly. These results indicate that the connotations of the two classifications of SD statements from the two scales is a function of the classification rather than of the scale. One conclusion, therefore, is that the lack of correlation between the measures from the two scales is not accounted for by a difference in the meaning of SD to the extent that this meaning was measured in this study. These results in fact support the conclusion that the concept of SD has a generality of meaning beyond that associated with personality statements.

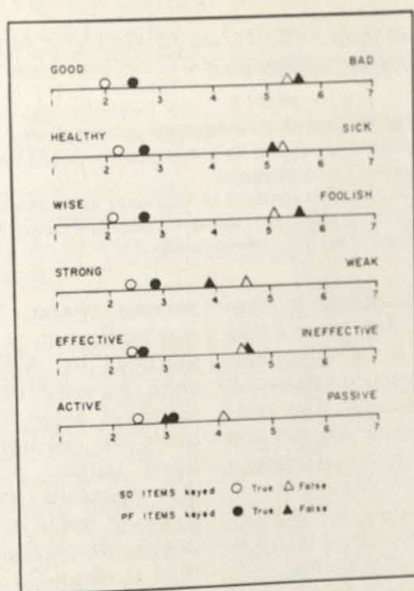
In Experiment III the statements used in Experiment II were used as short forms of the two scales used for Experiment I; and measures comparable to those used in Experiment I were obtained for these abbreviated scales. Table 1 also describes the scores obtained with these scales. The correlation between the scores on the subgroup from the Edwards' SD scale and the scores on the subgroup from the P-F Study SD scale were: .16 for males; .04 for females; and .08 for both groups combined. None of these correlations is significant ($P >$

Table 1

Description of Scores on the Two Measures of the Tendency To Endorse SD Responses and Also the Short Forms Derived from These.

	Male			Female			Total		
	Mean	σ_m	N	Mean	σ_m	N	Mean	σ_m	N
Edwards' SD Scale	29.21	.674	56	29.54	.623	81	29.41	.459	137
PF Items	35.77	1.095	56	41.21	.916	81	38.99	.736	137
Short Form									
Edwards' SD Scale	7.83	.130	156	7.83	.118	245	7.83	.088	401
PF Items	7.63	.123	156	8.40	.085	245	8.10	.072	401

Fig. 1. Mean Ratings of 94 Ss for the 4 Subgroups of Items Indicated Each Point Is the Mean for 5 Items.



.05). With the abbreviated scales, therefore, as with the full scales, significant correlations between the two SD scales were not found.

Experiment III was conducted in order to determine whether or not it would be reasonable to conclude that the sample used in Experiment II was a representative one. The results reported above give support to the conclusion that it was.

The above results lead to two main conclusions which relate to the generality of the concept of SD. The first is that there is agreement across Ss as to the connotations of both a socially desirable response and a socially undesirable one, whether it be a self-description statement or a response to another person. The two types of statements therefore, do not differ in this respect. Personality type statements differ, however, from responses in social situations in respect to the measure each type provides of a person's tendency to endorse SD responses. The second conclusion therefore is that although SD has a similar evaluative connotation in the two contexts, the response manifestations differ. When the concept is extended as it was in this study

to areas other than personality inventories, the context providing the measure of the tendency to endorse SD responses must be specified.

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Autonomic Balance and Reactivity in Relation to Indices of Psychopathology on the MMPI

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Summary: Changes in MMPI scores of 20 depressed patients (from placebo to drug) were correlated with changes in autonomic balance. In a second study, MMPI scores of 13 galvanic skin "reactors" and 25 "nonreactors" were compared.

Results suggest that the MMPI is sensitive to differences in autonomic balance and reactivity and to apparent parasympathetic shifts and that autonomic non-reactivity to neutral stimuli in the environment may be indicative of severe psychopathology.

There has been much interest and experimental effort expended in attempts to relate various indices of autonomic nervous system functioning to behavioral measures of anxiety arousal. The relationship between autonomic balance and various psychological indices of anxiety and control of anxiety has been reviewed and experimentally investigated by Acker (1963a, 1963b). In a series of investigations, Graham (1962, pp 221-238) reported results which suggest that a predictable relationship may exist between patterns of physiological response and specific attitudes elicited by certain stimulus conditions. Although many promising leads have arisen from these and other studies, there are unanswered questions which require much further research. As Martin (1961, p. 251) observed in a careful review of the literature, one cannot conclude at this time "that any clear-cut pattern of physiological-behavioral responses associated with anxiety arousal, distinguishable from other arousal patterns has been demonstrated."

Level of activation of the autonomic nervous system as reflected by autonomic balance has been considered by Wenger (1948) and others to be a sensitive physiological index of anxiety level of the individual. Autonomic balance (\bar{A}) refers to an estimated factor score which reflects the relative apparent dominance of either the sympathetic or parasympathetic branch of the autonomic

nervous system. The development and standardization of the measure has been described by Wenger (1948). It is derived by combining weighted standard scores of seven resting measurements: heart rate, diastolic blood pressure, salivary output, palmar skin resistance, skin resistance change from straining to reclining, volar skin resistance and sublingual temperature. The normal mean of \bar{A} is about 70 with a standard deviation of about 8. Scores less than the mean indicate apparent sympathetic dominance and reflect relatively high anxiety. Scores above the mean indicate apparent parasympathetic dominance and relatively low anxiety.

This paper reports the results from two investigations involving relationships between autonomic nervous system response and 12 scales from the MMPI (L, F, K and the 9 clinical scales). These studies will be treated separately for convenience of presentation.

Investigation 1

Method

Data were collected for a study of the effects of drugs and placebo on psychophysiological relationships among 89 hospitalized patients manifesting the depressive syndrome (Rothman, Grayson & Ferguson, 1961, Pp. 937-941)¹. These patients were randomly assigned to one

¹- The authors are indebted to Harry M. Grayson for access to data used in Investigation 1.

of three groups and previous medication discontinued. They were then placed on placebo for two weeks. At the end of the second week on placebo a large battery of tests was given including the MMPI and tests for autonomic balance. The same battery was administered at the end of the study after two of the groups had been treated with experimental drugs for approximately eight weeks. The third group remained on placebo. The experimental drugs were imipramine and isocarboxazid.

Results

Pearson product moment correlation coefficients were computed between MMPI scale raw scores and \bar{A} from the 89 patients while on placebo. Only the negative correlation between K and \bar{A} was statistically significant ($r = -.24$; $p < .05$), although a negative correlation between L and \bar{A} was of borderline significance ($r = -.21$; $p < .10$).

Because some patients had left the hospital prior to the second testing and full test results were not produced by others, only 20 cases were available who had complete testing twice on the autonomic and psychological batteries, distributed as follows: imipramine ($N = 9$), isocarboxazid ($N = 7$) and placebo ($N = 4$). Rank difference correlation coefficients were computed between changes in MMPI scale raw scores and changes in \bar{A} scores. Changes in each variable were represented by a difference score (test 1 minus test 2). Rank difference correlation coefficients for \bar{A} and MMPI scale raw scores are shown in Table 1 with associated significance levels based on two tail tests. Negative correlations significant at $p < .05$ were found for scales Sc , Hy , and Pt . The correlations with Pd and Pa are in the same direction, but are not statistically significant.

Comparison of groups for changes in MMPI scale raw scores using the Mann-Whitney rank test showed a greater shift ($p < .10$) toward lower scores on D and Mf scales only for both isocarboxazid and imipramine groups as compared to the placebo group. Also, the imipramine group showed an increase in \bar{A}

Table 1
Rank Difference Correlations
Between \bar{A} Change Scores
and MMPI Scale Change Scores

MMPI Scale	R_d	P
L	-.05	
F	-.04	
K	-.06	
Hs	-.05	
D	-.23	
Hy	-.50	<.05
Pd	-.40	<.10
Mf	.10	
Pa	-.34	
Pt	-.46	<.05
Sc	-.51	<.05
Ma	-.23	

scores which was significantly greater than in the placebo group ($p < .05$), based on Mann-Whitney rank test comparisons of \bar{A} change scores.

Investigation 2

Method

Thirty-eight hospitalized neuropsychiatric patients were presented a taped series of words to which they listened from within a sound-attenuated experimental booth. They were seated comfortably with nobody else present in the booth. Following an orientation phase on the tape were two presentations of the word "lamp" interspersed with other words separated by intervals ranging from 6 to 11 seconds. The word "lamp" was considered neutral because, in the opinion of two judges, these Ss gave no word associations on a multiple word association test which could be considered dysphoric.² A continuous polygraph recording was made of skin resistance changes.³

² These patients had been given a word association test on a previous day in which they responded with as many associations as possible to stimulus words (including "lamp") within 30 seconds per word.

³ Skin resistance was measured using a 40 micro-ampere Darrow-type bridge and continuously recorded by an Offner Dynograph unit. Cup-type zinc electrodes and zinc sulphate electrode paste were used.

Results

Of the 38 patients, 13 (reactors) were found to give galvanic skin responses to either one or both of the two presentations of the word "lamp," whereas 25 (non-reactors) gave no GSR. No association was found to exist between magnitude of GSR and baseline resistance levels. *Reactors* and *Non-reactors* were compared for MMPI scale raw scores. Non-reactors were significantly higher in psychopathology as reflected by seven of the twelve scales. Table 2 shows the levels of statistical significance associated with group differences. In all cases in which differences between groups were statistically significant, the non-reactors had the higher psychopathology scores, viz., *Hs*, *D*, *Hy*, and *Pd* ($p < .01$), and *F*, *Pt* and *Sc* ($p < .05$).

The mean *T* (or *Tc*) scores were computed for each scale and the mean profiles for reactors and non-reactors are presented in Figure 1.

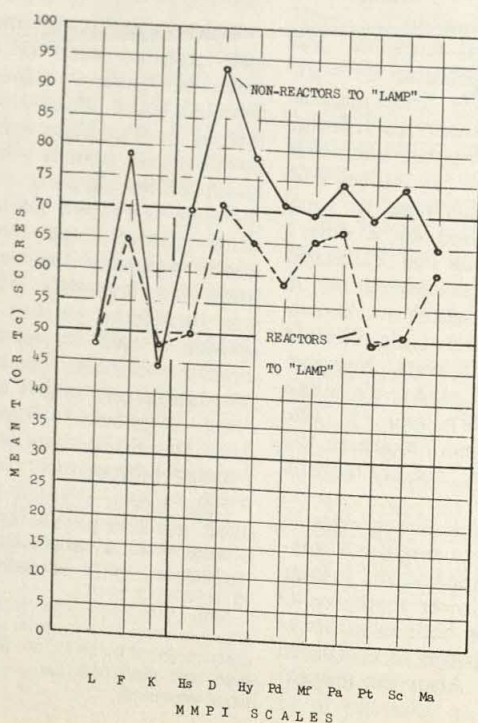
Table 2

Comparison of MMPI Scale Raw Scores of GSR Reactors and Non-Reactors to "Lamp"

MMPI Scale	p
L	
F	<.05
K	
Hs	<.01
D	<.01
Hy	<.01
Pd	<.01
Mf	
Pa	
Pt	<.05
Sc	<.05
Ma	

Note.—Probability levels are based on an analysis of results with the Mann-Whitney rank test.

Fig. 1. Mean *T* (or *Tc*) scores for reactors and non-reactors (GSR).



It seemed possible that these results might be a function of group differences in baseline resistance levels, in diagnostic class or in medication. On the basis of Mann-Whitney rank tests, there were no differences between reactors and non-reactors in baseline resistance levels. There were also no differences in reactivity between patients diagnosed as depressive and non-depressive, nor between patients diagnosed as schizophrenic and non-schizophrenic (with the exception of *Pa*, which was higher for schizophrenics ($p < .05$)). Three expert judges independently ranked the medication records of all patients in terms of suppressing effects on the GSR. Information given the judges included names of the drugs, dosage levels and frequency of dosage, and length of time on drugs prior to autonomic testing. There was no statistically significant correlation between magnitude of GSR and ranks of any of the judges. Reactors and non-reactors to neutral words were almost equally distributed above and below the median rank for drug effects.

Investigation 1

Discussion

The negative correlation obtained between \bar{A} and K suggests that in this sample of depressed patients, those with an apparent dominance of the sympathetic nervous system tend to be relatively more concerned about the attitudes of others toward them, i.e., to present themselves in a more favorable light on the K scale of the MMPI. Admittedly, the relationship obtained is a weak one and could account for only a small proportion of the variance in K . In addition, this was only 1 of 12 correlations examined. Nevertheless, one would not expect even 1 out of 12 correlation coefficients to be significant at the 5% level of confidence by chance alone, and the finding warrants some consideration. Superficially, this finding appears to contradict more substantial findings concerning the relationship of anxiety and the K scale. Acker (1963b) reported significant negative relation-

ships between K scores and both Taylor and Freeman Manifest Anxiety scores among 45 college students, findings which resemble those of Taulbee with normals, neurotics and schizophrenics.^{*} Such relationships are not surprising in view of the social desirability weighting of both K and $TMAS$ items (in which four over-lapping items are scored in opposite directions). However, in the study by Acker (1963b) no relationships were found between \bar{A} and K nor between \bar{A} and either Taylor or Freeman Manifest Anxiety scores. As cited in that study, available evidence points to the likelihood that autonomic balance and inventory measures of anxiety have little in common although they are both frequently referred to as measures of anxiety. Apparent sympathetic dominance appears to be more closely related to efforts to accommodate to social desirability than to a tendency to disclose anxiety symptoms. On the other hand, when there is a reduction in the disclosure of thought and behavior disorder as reflected in certain clinical scales (*Hy*, *Pd*, *Pt*, *Sc*) of the MMPI following drug treatment, there tends to be a shift in the parasympathetic direction in autonomic balance, as was shown by the second portion of Investigation 1.

Investigation 2

The mean profiles for reactors and non-reactors on the MMPI suggest that the latter group disclosed greater amounts of psychopathology on the various scales consistent with patterns frequently obtained with more acutely disturbed patients in which depression is a salient feature. The reactors, though having a profile that is not strikingly different in shape, disclosed less pathology, consistent with groups of patients which might be described as not overtly psychotic residual schizophrenics. "Reactor" is defined in the study as merely one who shows a GSR to a neutral verbal stimulus. However, one feature of the profile, viz., the elevation of *Ma*

* E. S. Taulbee, Personal Communication, June 9, 1967.

above *Pt* in conjunction with the peak at *D*, suggests that this group might be more emotionally labile. It appears that greater galvanic skin reactivity is associated with disclosure of fewer symptoms on the MMPI. Such an interpretation is consistent with the discussion above concerning manifest anxiety.

Both studies suggest that meaningful relationships may be found between certain variables of the MMPI and autonomic functioning. It is especially noteworthy that reduction in pathology shown on the MMPI is accompanied by a shift involving a decrease in apparent sympathetic dominance. Certain scales of the MMPI appear to be sensitive to differences in autonomic balance and reactivity and to apparent parasympathetic shifts.

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A Multivariate Profile Analysis of MMPIs of Suicidal and Nonsuicidal Neuropsychiatric Hospital Patients

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Summary: Using six MMPI scales and a multivariate discriminant analysis, the question was asked whether differences existed between nonsuicidal and threatened, attempted, and committed suicides. The results indicated that there were significant differences between the mean score of the four groups. The application of the various identification rates to populations with different suicidal base rates and the implication of the findings for the prediction of different types of suicidal behavior was discussed.

An early study by Farberow (1950) showed differences between groups of threatened, attempted, and nonsuicidal subjects when they were compared on individual MMPI scales. Rosen, Hales, and Simon (1954), in a replication of this study, found similar differences. Simon (1960), who studied MMPI profiles of a group of attempted suicides, concluded that the MMPI might be profitably used for the prediction of suicidal behavior. Simon and Hales (1949), Holzborg, Cohen, and Wilk (1951), and Simon and Gilberstadt (1958) also examined MMPI profiles for similar possibilities of identification. They too concluded that the MMPI scales, either in toto or in part, could be used to identify suicidal behavior. None of the above mentioned authors, however, specified clearly the degree of success that could be attained by the use of MMPI scales, especially in comparison with the base rates for particular populations. The authors were also not explicit as to which scales were the differentiating ones.

One of the difficulties inherent in the above analyses may have been the implicit assumption that the suicidal and nonsuicidal subjects fall on a single continuum insofar as their responses to the MMPI are concerned. This may not be true. It is equally or even more likely that these two groups differ on more than one dimension as far as MMPI responses are concerned. This study investigates the types of suicidal behavior which can

be distinguished by means of certain MMPI scales.

Method

Subjects. Four groups of Ss from Veterans Administration Neuropsychiatric hospitals consisted of nonsuicidal controls (NPC), $N = 80$; threatened suicides (TS), $N = 82$; attempted suicides (AS), $N = 77$; and committed suicides (CS), $N = 43$. The test protocols of the committed suicide group came from VA hospitals across the country. All tests for the committed suicides had been administered within six months before the date of death. One-half of the attempted and one-half of the threatened suicide group came from the Minneapolis VA.² The remaining groups, half of the attempted, half of the threatened, and all non-suicidal controls, came from a local VA hospital.³ The MMPI had been administered to all these groups within 30 days of admission to the hospital. The mean interval was 14 days.

The median ages of the four groups were 34, 35, 35, and 35 for the NPC, TS, AS, and CS respectively. Sixty-three to 75 percent of all groups had completed high school. Approximately 46, 54, 43, and 57 percent respectively of the TS, AS, CS, and NPC's were married. Diagnostically, the threats,

² The authors want to express their appreciation to Drs. Rosen, Hales, Simon and Gilberstadt for the use of their test protocols.

³ The authors acknowledge their gratitude to Dr. Harry M. Grayson, Chief of the Department of Psychology, Brentwood V.A. Hospital for his permission to collect the necessary test protocols from his department.

¹ Special recognition is due to Mr. Robert Renie for his assistance and counsel in the statistical procedures required for this study.

attempts, commits, and NPC's had 34, 26, 46, and 38 percent psychotics respectively and 49, 47, 28, and 34 percent neurotics.

Procedure. From previous research, Farberow (1950), it had been determined that Pa, Sc, Pt, Ma, Pd, and D scale were more promising than others for differentiating various suicidal and non-suicidal groups. It was decided to use only these scales in the Multivariate

normality before being analyzed. No statistically significant nonnormal distributions were detected at the .05 level. It was therefore assumed that the prerequisite of normal score distributions for the discriminant analysis was satisfied.

Results

The generalized Mahalanobis D^2 statistic V showed that the associated chi square was significant at $p < .001$.

Table 1
Mean MMPI Scale Scores for Groups of NPC, AS, TS and CS

Group/ MMPI Scale	Pa	Sc	Pt	Ma	Pd	D
NPC (n = 80)	60	67	66	62	69	74
AS (n = 77)	62	72	72	61	71	78
TS (n = 82)	70	83	84	63	76	90
CS (n = 43)	63	77	77	60	71	82

Note. — All scores have been rounded off to whole numbers.

Table 2
Number and Percent of Cases Assigned to Each Classification Group

Predicted	Actual									
	NPC		AS		TS		CS		Total Predicted	
	N	%	N	%	N	%	N	%	N	%
NPC	42	43	29		18		9		98	100
AS	7		13	41	6		6		32	100
TS	19		21		48	46	16		104	100
CS	12		14		10		12	25	48	100
Total Actual	80		77		82		43		282	

Analysis. The design consisted of 4 (groups) by 6 (scale scores) discriminant analysis (Kendall, 1961) to determine whether the persons in the four groups could be identified as belonging to the correct group.⁴ The short form MMPI had been administered to all subjects. The score distribution of the four groups on the six scales were tested for

The hypothesis that the mean values (see Table 1) of the four groups were the same for the 6 scales was therefore rejected.

Table 2 indicates with what accuracy the various groups could be distinguished from each other. It shows that 52, 17, 59, and 28 percent respectively of the actual NPC's, AS, TS, and CS were classified correctly. Or one could say the subjects were classified as NPC, AS, TS, and CS with 43, 41, 46, and 25 percent efficiency (or accuracy).

⁴ Appreciation is expressed to the Western Data Processing Center where the necessary computer analyses were made.

Discussion

The results show that the threat suicides are most easily distinguishable, with the nonsuicidals, the attempts, and the commits second, third, and fourth respectively. The total efficiency of the test is the numbers of each group identified correctly (42 NPC, 13 AS, 48 TS, and 12 CS) divided by the total N, 282, or 41 per cent. Without the test, the best prediction would be to call everybody a threat suicide, since this is the largest group present. This would give a total efficiency of 29 per cent. The test has, therefore, provided a 12 per cent increase in efficiency. This is even more pronounced when one looks at the different types of prediction the test is capable of making. The predicted NPC's, AS, TS, and CS are classified with 43, 41, 46, and 25 per cent efficiency respectively. The greatest accuracy one could achieve for predicting individual criterion categories by not using a test, obtained by putting all cases into each desired category, is either 28, 27, 29, or 15 per cent respectively for the NPC's, AS, TS, and CS. The use of the test, therefore, as opposed to not using a test increases the prediction efficiency for the respective groups by 15, 14, 17, and 10 per cent.

These results are of considerable significance both for prediction purposes and theoretically. It indicates that the usual classification of suicidal behaviors into threatened, attempted, and committed suicide has merit. Some authors such as Farberow (1962) and Shneidman (1963) have questioned the continued use of these categories. They think that a classification of suicidal behaviors into degrees of lethality is more meaningful. These results indicate that the classical differentiation of suicidal behavior can be used for identification or prediction purposes.

Although the analysis was in terms of groups of NPC, AS, TS, and CS, one can combine the three suicidal categories into one. The subjects then would be separated according to suicidal or nonsuicidal behavior. Table 2 shows that

the test classifies 98 persons as non-suicidal. Of these, 42, or 43 per cent actually are nonsuicidal. There are, therefore, 57 per cent false negatives or misses. However, these ratios are much improved if we look at the *suicides* who are identified. The test classifies 184 (32 AS, 104 TS, and 48 CS) as suicides and of these 146, or 79 per cent, are actually suicidal. This results in only 21 per cent false positives, which may be considered good as far as tests of this nature are concerned.

Of course, the above figures change when the base rates of the occurrence of the variables in question in various populations are taken into account. For instance, if these figures are applied to a population with a base rate of .34 for suicidal behavior (obtained from an examination of the incidence of all suicidal behavior in a local hospital), the application of the test shows the following (see Table 3). Without a test one can predict with an efficiency of 66 per cent by calling everyone nonsuicidal. Although the test allows one to predict both suicidal and nonsuicidal behaviors, such predictions are not necessarily made with the same efficiency in either direction. With a .34 base rate one can predict suicidal behavior with an accuracy of 42 per cent using the test (see Table 3). This is an increase of eight per cent over the 34 per cent one could predict without the test. However, when the prediction is made in the nonsuicidal direction the test achieves an accuracy of 80 per cent, versus 66 per cent without the test. In this kind of a situation, therefore, the most effective prediction is made in the nonsuicidal direction and the test should be used to identify this type of person. The remainder can then be scrutinized by other means.

The type of person identified, of course, will change in different situations. For instance, when one applies the discriminating ability of the test to a population with a base rate of .95 suicidals, such as at the Suicide Prevention Center, the following results are obtained (see Table 3). Without the test one can achieve a 95 per cent accuracy

Table 3
Number and Per Cent of Cases Identified in Populations With
Different Base Rates of Suicidal Behavior

Predicted	Actual						Actual					
	NPC		S		Total Predicted		NPC		S		Total Predicted	
	N	%	N	%	N	%	N	%	N	%	N	%
NPC	28	80	7	20	35	100	2	9	20	91	22	100
S	38	58	27	42	65	100	3	4	75	96	78	100
Base rate	66		34		100		5		95		100	

by calling everyone suicidal. The test classifies 22 as NPC's, whereas only 2 qualify which is 9 per cent accuracy. This is in contrast to the 80 per cent results in the population with the .34 base rate. On the other hand, in the population with the .95 base rate, the test classifies 78 as suicidal of which 75 qualify which is 96 per cent accuracy. In this case, therefore, the test predicts suicidal persons better than nonsuicidal.

Of most importance, however, is the finding that all three suicide groups can be identified by means of the MMPI with greater accuracy than without this test. As far as can be ascertained, this is the first time that it has been possible to identify committed suicides from other types of suicidal and nonsuicidal behavior. This implies that one can concentrate profitably on developing more sensitive instruments for the prediction of different types of suicidal behavior. Examples in medicine show that certain symptoms may be indicative of a future illness. The present results show that there seem to be behavioral signs in the personality dynamics of some people which are presursors of committed suicides. The further identification and refinement of such signs, of course, would

help immeasurably in the potential saving of lives.

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BOOK REVIEWS

Dana, Richard H., *Foundations of clinical psychology: problems in personality and adjustment*, Princeton, N.J.: Van Nostrand, 1966, 322 pp.

Although there had been visible signs of the pregnancy, clinical psychology was born dramatically as a new discipline in the torment of World War II. The post-war Boulder Conference followed with historic agreements shaping the neonate profession in the model of the scientist-clinician. A clinical psychologist came to be defined as a Ph.D. meeting rigorous standards of academic and psychiatric experience. With adolescent fervor, the new profession set out to prove itself and establish its rights. Eventually, adult stature was achieved when the clinical psychologist established his right to practice psychotherapy independently. Now, full respectability is marked by formal standards that have the force of law. This brief quarter century has established what might be called a *traditional clinical psychologist*: grounded in behavioral science; schooled in personality theory; skilled in assessment techniques; and committed to individual psychotherapy. And it is this tradition which provides the context for Dana's book.

This volume presents the *foundations* of clinical psychology by examining its conceptual framework, assumptions, vocabulary and method; reviewing development and measurement of personality; and finally analysing maladjustment and psychotherapy. In this sense the author has written, first of all, a survey touching briefly on the requisites for clinical psychology: personality theory, measurement, development and disorder. The focus, as stated in the sub-title "Problems of Personality and Adjustment," is that of individual personality, rooted in the past and relatively consistent over time. The clinician is concerned with the dynamics of maladjustment and readjustment.

The plan of the text is to follow theory and research chapters with a case study chapter. Detailed analyses of dynamics and psychotherapy are presented for three cases. One of these is an acting-out character disorder; another is a case of castration anxiety with syncope; and the third is a paranoid schizophrenic reaction. The cases also serve to illustrate a four-fold schema of the clinical process from observation and abstraction to integration and diagnosis. There is one chapter on the most-used tests: Rorschach, MMPI and TAT. Dana brings out that the clinical method is in the scientific mainstream of observing

nature and striving for objectivity. There is liberal reference to research and a separate chapter on psychotherapy research.

Perhaps the greatest merit of this book is Dana's ability to communicate a deep regard for the integrity of personality. The troubled person as an individual is put ahead of professional or scientific values. The clinical psychologist emerges as a genuine and responsible man. Dana's head acknowledges the significance of the scientific tradition but his heart is in the experiential relationship. His clinical psychologist must *be* in order to *do*. Within the traditional framework of clinical psychology, Dana advocates a number of reforms in this vein. He wants a more humanistic psychology devoted as much to understanding as to prediction; as much to imagery as to behavior. Dana protests against training he sees as stifling intuition, emphasizing nomothetics, revering method-centered research, and manipulating client and student alike as objects. The clinical psychologist should be a generalist open to experience and participating with rather than controlling others. Dana, well known for his research on projective techniques, has been sufficiently thoughtful on these issues to present his own model for the training of clinical psychologists (Dana, 1966).

Unfortunately, *Foundations of Clinical Psychology* may have trouble finding its proper niche. It is intended primarily for advanced undergraduate and graduate students in courses in clinical psychology or in a sophisticated course in personality adjustment. Senior psychology majors would find a significant amount of overlap with their other courses precisely because of the "foundations approach" of this text. Personality adjustment students might be bothered by the amount of theory and number of terms as well as the fact that examples of problems do not relate to garden-variety maladjustment. Both groups of students would probably prefer more examples of clinical method in action integrating psychological knowledge in coping with problems. The foundations approach has some built-in frustration: too much soup and salad compared to the size of the entree. The entree is relatively small because of Dana's admirable attempt to value brevity. The presentation should be supplemented by many examples provided by the instructor. These should include assessment of intellectual deficits; problems of children and approaches to treatment; neurotic transactions in dyads; intervention in family dynamics; variety of group therapy; and more complete consideration of the behavior modification techniques.

Dana has presented us with the traditional core of clinical psychology. Most clinicians will share his values and feel at home with his viewpoint. The image that is projected is the psychotherapeutic treatment of the disturbed personality by means of empathic communication after his dynamics have been explored by means of case history, interview and tests. There is no suggestion, however, of the newer clinico-social role in the mental hospital (Fairweather, 1964), or the need to expand the traditional roles (Glaudin, Wallen, Miner, Boyd, & Klopfer, 1966) to reach more people, especially the have-not groups. Dana has written a sound book which portrays much of the best of clinical psychology but fails to bring out the growing edge most relevant to the society of the 1960's.

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Goldstein, Arnold P., Heller, Kenneth, and Sechrest, Lee B., *Psychotherapy and the psychology of behavior change*. New York: John Wiley & Sons, Inc., 1966, 492 p., \$8.95.

It is usually a difficult task to write a book on psychotherapy, especially the technique of psychotherapy. Possibly, there are two reasons for it; first, the problems of psychotherapy inevitably get involved with the issues of values, ethics and morality and will lead the author in the midst of social and philosophical controversies; second, since psychotherapy attempts to deal with human experiences and conduct that has meaning, a single book can barely do justice to such a vast subject. Therefore, due to the very nature of the subject matter, books on psychotherapy are either positional or deal with only a part of the subject matter called psychotherapy. This book is no exception.

In the recent history of (clinical) psychology, much has been said about the scientist-professional model of a psychologist; i.e., a psychologist should be both a scientist and a professional

practitioner of psychology at the same time. This volume is written from the standpoint of a "scientist" and therefore embraces operational and behavioristic research, behavior therapy and behavioristic ideology. It criticizes others (the so-called professionals) from such an ideological and theoretical position.

This book is divided in three sections; the first, Introduction, Research Design and Methodology (pp. 1-72); the second, Individual Psychotherapy, (pp. 73-318); and the third, Group Psychotherapy (pp. 319-449.)

The first section is generally well-done. It outlines the basic rules of research, shows how to avoid methodological errors and makes suggestions on how to improve research design, interpret findings, etc. However, this section has a "feeling tone." It is both implicitly and explicitly written for the benefit of a clinician. It is conveyed that the difficulty with the area of psychotherapy arises because the clinicians do not know how to do "good research"; if they knew how to do "good research," then they wouldn't practice psychotherapy because they would be aware how unscientific psychotherapy is. Therefore, the first section, as it were, is a lecture to clinicians on research. Further, it suggests that those "clinicians" who have been practicing psychotherapy have really not quite utilized all the available knowledge and information to improve their work. Such knowledge is obtainable from extrapolation from non-clinical researches. Thus, in a somewhat self-righteous manner, the book proceeds to show the clinician "how to change behavior more effectively", utilizing the "non-clinical" information. It should be commented that most of those who want to do "good therapy" (and therefore try to keep up with the literature) should indeed be familiar with much of the so-called non-clinical research, which the authors present as something novel. This reviewer at least was familiar with much of the "non-clinical" research reported in the book.

The section on individual psychotherapy is somewhat confusing, yet informative. The book seems to get tangled in the issues of ethics of psychotherapy. One such implicit (ethical) theme is an extensive defense against the charge that behavior therapy is manipulative in nature.

The authors argue that all therapies are manipulative in nature (they do not raise the issue of coerciveness in therapy; if anything, they condone it), and therefore, there are no fundamental issues of ethics, values and morality involved in psychotherapy. Hence, the values and ethics of a therapist play a minor role in the "scientific" understanding of psychotherapy, since science itself is value-neutral. What is required is the scientific techniques of behavior modification to shorten the long, drawn-out process of psycho-

therapy which is wasteful of time and manpower.

It is true that perhaps every therapist would like to see the same or similar results obtained in a shorter, rather than a longer period of time, whatever the technique may be. Unfortunately, according to the reports and studies, the advocates of behavior therapy have not come out with anything which produces better results than the existing forms of therapies. Furthermore, it should be noted, somewhat contrary to what the book suggests, that a great deal of importance is placed upon the values and ethics of the therapist in recent literature, since these factors seem to effect the course and outcome of therapy in a significant way.

Nonetheless, in this section there are informative and provocative suggestions which every therapist ought to seriously think about; should the traditional method of psychotherapy be applied to all "mental patients" as is usually done? What new forms of psychotherapy methods could be applicable to different kinds of "mental patients"? Could one use different techniques of therapy with those who are afraid of other people or with those who do not want to talk, or with those who are resistant, etc? If so, what kinds of techniques? There are numerous suggestions based upon empirical findings to the aforementioned issues.

Perhaps by far the best section is the third section of the book, Group Psychotherapy, to which approximately one-fourth of the volume is devoted. It integrates the studies done on small and large groups in a coherent, meaningful way, and shows how these studies are applicable to the practice of group therapy. In the opinion of the reviewer, this section alone provides enough reward for plowing through this book. This section deals with the basic issues of group therapy—group composition and initial structure, group psychotherapists' orientation, leader vs. member-oriented groups, etc. These chapters provide an excellent summary of research findings and guidelines for action for every group therapist.

One may speculate that perhaps the section on Group Psychotherapy is so well done because the authors essentially report and summarize researchers on groups and simply attempt to demonstrate how these could be applicable to the practice of group therapy. They do not get involved in controversy as to what kind of therapy is more "scientific;" whether one should practice psychotherapy when there is not enough so-called scientific data; whether clinicians are doing the right thing in doing psychotherapy at this stage of development of psychology, etc.

Although somewhat prolixly written in a Psychological Bulletin style, it is exceptionally well-documented and should form a part of reading material in the graduate courses on psychother-

apy to provide one of the perspectives on psychotherapy. It should be balanced by other reading material of different theoretical viewpoints.

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Phillips, Herbert P., *Thai peasant personality*, Berkeley and Los Angeles: University of California Press, 1965, Pp. 231, \$6.00.

The desire of Man to understand himself as well as others is a prime goal of both Psychology and Anthropology. For this reason, over the years, both psychologists and anthropologists have been interested in the other's professional activities, methods, and techniques, often borrowing, adapting, and sometimes adopting that which could be used.

It is not strange, therefore, that Herbert Phillips, a budding anthropologist, working for his doctorate at Cornell University, combined in his study of the peasant life in the little village of Bang Chan, Thailand, some of the techniques used by psychologists with the field studies of anthropology. The result is a well-planned, sometimes humorous, and at all times scholarly report of his findings. He makes no claims that his report is a total picture of all of Thai life nor does he indicate that his almost two years in Bang Chan makes him the final word as an expert on all peasant life.

Phillips shows the long preparation necessary for embarking on such a study—the diligent research into the findings of those who went before him to Thailand; the six months of study of the Thai language; the tedious preparation of the tools he would need to make his observations meaningful, such as the questions to be asked, the observations to be made, the preparation of a Sentence Completion Test specifically adaptable to the people he would study, and the selection and training of the assistants who would work with him with the people and to translate the material. Only after all of these preparations was he ready to live with the inhabitants of the village, not as one of them, because this would be impossible as he was not a native of Thailand, but as one who was sincerely interested in their way of life.

Phillips traveled among the natives, observing how they spent their time at work and play talking to them, making friends with them, and directing questions at them. His assistants were a small group of young men and women who were native to Thailand, though not of the village. Often, they found his thinking as foreign to

them as they to him. Thus, language was not the only barrier that had to be overcome. He needed to have the people of Bang Chan accept him for what he was doing and what he hoped to learn from them and as he described, even enlisted their support by saying they would help him to pass his examination as the result of what he could learn about them. While his naturalistic observations concerned the entire village, his Sentence Completion Test sample covered 11 percent of the population, based on four variables, that of age, sex, religion, and economic status.

The Sentence Completion Test was used to study the areas of attitudes toward authority, dependency, orienting toward others, anxiety and reactions to crises, aggression, and dominant drives and wishes. Questions and answers were given orally and in the Thai language, to a great extent because of the villagers' lack of facility with the written language. The purpose of the test was to determine how the people felt about themselves whereas the observations could indicate only how Phillips saw them, as he thought they were. The final task was to secure from the natives their life histories.

From what Phillips calls the "lessons from Thai culture" we see a simple, friendly people, engaged in satisfying needs that are universal as well as some which are indigenous only to them. Their deep religious beliefs, their child-rearing practices, their desire for isolation and to be left alone, more pronounced than we experience in our Western and city-life existence reflect these differences. His study appeared to this reader to be more than a means for earning a degree—his was a search for an understanding of himself in relationship to those of another culture. He succeeded, it appears, in this as well as in passing his examination which he dangled before the natives to secure their cooperation. He is now a member of the Department of Anthropology at the University of California and this reviewer hopes that he returns someday to Bang Chan for a second look—and takes the reviewer with him as his assistant.

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Hudson, Liam. *Contrary imaginations: A psychological study of the young student.* New York: Schocken Books, Inc., 1966. 181 pp., \$4.95.

After several years of research regarding the basis for "Arts/Science" specialization among

English schoolboys the author shifted to an attempt to "delineate two types of clever schoolboy: the converger and the diverger", and ultimately found himself considering the psychological foundations of original production. The converger is one who does best at closed-ended tests, such as intelligence tests which have definite answers; whereas the diverger does best at open-ended tests, such as thinking of as many uses as possible for a blanket. Before the reader begins to fully comprehend the distinction between convergers and divergers he must "read along with Liam" as he chats in a delightful, loose, rambling, and sometimes humorous style about some of his preoccupations.

First, one must learn about the author's biases in Presuppositions (Chapter One). For those who detest trivial measurements, feel that complex statistics are a way of avoiding human subject matter, and suspect that unsinkable theories lure researchers into blind alleys, this should be a pleasurable chapter.

After several years of research with his English schoolboys the author felt the "moral" of his findings was that academically successful boys are distinguished not by their capacities, but by the use they make of their capacities. This lead him to an exploration of the inclination to do well on open-ended tests. And *inclination* is just what Hudson feels underlies excellence at these tests, not basic aptitude. After considering a Network of Connections (Chapter Four) within his research data he concludes that the use made of intellectual capacity is directed by one of several "Rival Systems of Defence" (Chapter Five). If the schoolboy prefers to hide his feelings by avoiding emotionality altogether he will tend to become a convergent thinker. Should he be inclined to hide his true feelings behind a smokescreen of emotionality he will tend to become a divergent thinker. Convergent thinkers then become scientists (largely) and divergent thinkers become "Arts Specialists" (largely). Some readers may feel that Hudson's classification of psychologists as hybrids is a bit self-indulging (but intriguing as a research hypothesis).

For those who would associate divergent thinking with creativity, Hudson's next formulations could be a surprise. He is to be highly commended for his critique of American researchers who confuse the ability to do well on open-ended tests with original thinking. To Hudson originality and creativity will occur within the framework of both divergent and convergent thinking. His clarification of "convergent" originality should be carefully considered by American students of creativity. The discussion of the basis of originality (Chapter Eight) is quite challenging—though it might help the reader to look up the meaning of "nympholepsy" first.

Critically reviewing Hudson's book is a bit difficult as he presents his speculations but only a small amount of data (mostly in Appendix A: Statistical Tables). In an attempt to avoid being overly number-oriented he has deprived the reader of an opportunity to look over the data more closely and to reach his own conclusions. Hence, even though the book would seem to be a presentation of research, it is mainly a presentation of Hudson's speculations about data he has available to him. However, for the reader who would like to enrich his concepts about the relationship between intellectual competence and emotional "defences", or who is confused by the boom in creativity research, this should prove a most valuable book to read.

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Kantor, Robert E., & Herron, William G., *Reactive and process schizophrenia*. Palo Alto: Science & Behavior, 1966, 184 pp.

The suggestion of a process-reactive classification of schizophrenia is one that most workers in the field have probably heard of by now. The process schizophrenic has a long history of personal and family pathology, slowly culminating in a severe disorder with poor prognosis. The reactive schizophrenic has had good premorbid adjustment and has a favorable prognosis. In his 1962 review in the *Psychological Bulletin*, Herron was already suggesting that the dichotomy was somewhat artifactual and corresponded to an underlying continuum. Part I of the present volume is entitled, "The Schizophrenic Continuum". It begins with the hope that the process-reactive way of looking at things may meet the need for a better conceptualization of schizophrenia. The authors rightly point out the diagnostic problems: the limited reliability, the descriptive inaccuracy, and the lack of a causal model. Yet they never seem to consider the possibility that some major change might be the answer to all of this. They work within—or seem to, at first—the standard, implicit notion of schizophrenia.

I say "at first" because as one reads through this and Part II, "Empirical Validation", their terms for defining the five identified steps in their continuum soon stop sounding schizophrenia-specific. For example, their description of the Rorschach of a "Mild schizophrenic" is: "well integrated, adequate reality contact, may be somewhat flat emotionally, shows neurotic overlay, color shock, low C." That sounds like some sort of mild emotional disturbance, all right, but

why schizophrenia? The same sort of thing tends to be true of their descriptions of life history data and of present pathology. Rather than a reconceptualization of schizophrenia, this sounds like a kind of "one illness" theory of mental and emotional disorders: something like the view Karl Menninger has proposed, in which what are commonly classified as different disorders are seen as progressive steps along a continuum of personality disorganization, or the symptoms are seen as restitutive attempts at each level of disorganization. This impression is reinforced by their summary that "Malignant schizophrenias result from early and severe damage, while benign ones associate with later and milder conflicts." One thing that does come out schizophrenia-specific is the research quoted. Both the earlier process-reactive studies reviewed here and the later five-step continuum study used patients who were all officially diagnosed as schizophrenic. Empirically, then, the continuum has only been investigated for schizophrenia; but there seems to be no compelling reason in the theory to thus limit it, nor anything in the obtained data to suggest that diagnosed neurotics would not show patterns like Kantor and Herron's mild-to-moderate schizophrenics.

The major theoretical point seems to be that: "The essence of schizophrenia is regression, correlated with the timing and quality of difficult life experiences in the schizophrenic's growth. This regression can be measured by estimates of perceptual and social development." This view does not seem to me to be unique enough to have warranted even a fairly short book to expound it. The chief value of this volume is, then, the review of the empirical literature on reactive and process schizophrenia and the presentation of one interesting new study. The authors' efforts to parallel the stages of schizophrenic regression with the developmental epochs of Sullivan failed to provide me with any new understanding, but staunch Sullivanians may find it otherwise. Their chapter on "Perceptual Theory" does provide some interesting consideration of research and concepts; it originally appeared (in a slightly different form) in 1965, in this journal.

Part IV, "Implications for Practice" and Part V, which consists of a single chapter on "An Existential View of Schizophrenia," focus almost entirely on the reactive schizophrenic—which again makes it seem like dichotomy rather than a continuum. The emphasis is on saving the reactive patient: he has potentially good prognosis, he is the "marginal man" of the mental hospital, his plight is the existential dilemma. Brief mention is made that the "association helplessness with chronic schizophrenia was shown to be erroneous even before the advent of tranquilizing drugs." Since, however, only two paragraphs of

the entire book suggest the error of that hopelessness, this review closes with the reminder that explorations in psychotherapy (such as the work of Betz and Whitehorn) have demonstrated that the chronic schizophrenic as well as the reactive is not only deserving of psychotherapy, but capable of profiting from it.

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Atkinson, John W. & Feather, Norman T. *A theory of achievement motivation*. New York: John Wiley, 1966, 392 + x.

This book should be read by all who do research in personality, who teach personality, or who are concerned with the wide variety of social problems that relate, even tangentially, to achievement. This recommendation does not rest upon the authors' definitive description of a theory and the evidence supporting that theory, because the book does not do that. Rather, Atkinson and Feather have compiled an exciting series of readings that describe a theory and present a series of studies stimulated by that theory that might well serve as an example of how research in personality should be conducted, if that research is to be fruitful. Further, they have produced results that clearly have exciting implications for the education of the culturally deprived, for solving the problems of poverty, and for aiding underdeveloped nations.

The authors' stated purpose is to present a theory and to make accessible an orderly arrangement of studies, scattered throughout a variety of journals, derived from that theory. In this humble purpose they have succeeded. The focus of the book is upon the "*contemporaneous* determinants of achievement-oriented activities—the *dynamics* of achievement motivation."

The book is divided into four sections. Part I describes the basic concepts, Part II presents six studies of aspiration and persistence, Part III presents studies applying achievement motivation to areas of social relevance, and Part IV presents studies relative to technical problems in research on achievement motivation. The editors have conveniently written two chapters, the first and the last, that neatly summarize the essence of the book for the hurried or the lazy reader. The first chapter, titled "Introduction and Overview" and the last chapter "Review and Appraisal" serve also as an excellent introduction to the book. One is almost tempted to suggest that these two chapters might best have been placed together at the beginning, since they pro-

vide a framework within which the remainder of the chapters may be meaningfully placed. Moreover, the final chapter presents a much better description of the basic theory of achievement motivation than any of the chapters in Part I. The authors suggest that the reader read the first and last chapters before reading the remainder of the book, a recommendation this reviewer endorses.

The authors conceive achievement motivated behavior to be a function of two tendencies, the tendency to approach success (T_s) and the tendency to avoid failure (T_{af}). The greater a subject's tendency to approach success and the less his tendency to avoid failure, the greater his achievement motivation.

The tendency to achieve success (T_s)—the tendency "to approach a task with interest and the intent of performing well"—is conceived as a "multiplicative function of the motive or need to achieve success (M_s), the strength of expectancy (or subjective probability) that success will be the consequence of a particular activity (P_s), and incentive value of success at that particular activity (I_s). The incentive value of an activity is presumed to be inversely proportional to the difficulty of the activity, so $I_s = (1 - P_s)$. The formula is thus $T_s = M_s \times P_s \times I_s$. The main implications of the basic theoretic formulation, plus the assumption that incentive is inversely proportional to the subjective probability of success are that: (a) "The tendency to achieve success should be strongest when a task is one of intermediate difficulty, but the difference in strength of tendency to achieve success that is attributable to a difference in the difficulty of the task (P_s) will be substantial only when M_s is relatively strong; "and (b) When the difficulty of a task is held constant, the tendency to achieve success is stronger when M_s is strong than when it is weak, but the difference in strength of tendency to achieve success that is attributable to a difference in strength of achievement motive (M_s) will be substantial only when the task is one of intermediate difficulty.

A second aspect of achievement motivation is the tendency to avoid failure (T_{af}). The tendency to avoid failure is conceived as a multiplicative function of the motive to avoid failure (M_{af}), the expectancy of failure (P_f), and the incentive value of failure (I_f). The incentive value of failure is conceived as being more negative the easier the task, so that $I_f = -P_s$. The two general implications of the tendency to avoid failure are: (a) "The tendency to avoid failure should be strongest when a task is one of intermediate difficulty, but the difference in strength of tendency to avoid failure that is attributable to a difference in the difficulty of the task (P_f) will be substantial only when M_{af} is relatively

strong;" and (b) "when the difficulty of a task is held constant, the tendency to avoid failure is stronger when M_{af} is strong than when it is weak, but the difference in strength of tendency to avoid failure that is attributable to a difference in motive to avoid failure (M_{af}) will be substantial only when the task is one of intermediate difficulty."

The resultant achievement-oriented activities of a person are the resultant of the subject's tendency to approach success (T_s) and his tendency to avoid failure (T_{af}) which combine algebraically, $T_s + T_{af}$. This combination will produce the greatest tendency to strive for success in a person in which the tendency to achieve success is high and the tendency to avoid failure is low. This combination has several interesting implications. Among these are that a person who has high achievement motivation is most likely to approach tasks that have an intermediate probability of success, and will tend to avoid tasks that have either very high or very low probability of success. This probability is *subjective* probability, however. That is, the probability as the subject views it, and not objective, realistic probability. Another implication is that as the subject experiences success in a particular task, his interest in that task will *decline*. This expectation, contrary to the prediction of reinforcement theory, derives from the fact that as he experiences success at an activity, the expectancy of success (P_s) will increase and thus the incentive value (I_s) of the activity, which is inverse to the probability of success, will decline. Thus a successful person, after a period of success at a particular activity, will tend to turn to other activities. Conversely, failure at a perceived "easy" activity would increase the high achievement motivated person's incentive to attempt that activity.

These predictions are explored in a series of studies, that to a large extent, confirm them. The theory, as it is finally presented, was revised somewhat as a consequence of the reported studies.

The second section of the book reports a series of studies of aspiration and persistence. These studies show that people with higher need achievement persist longer and achieve more at tasks of intermediate levels of difficulty, that achievement-oriented subjects had higher expectations of success than non-achievement-oriented subjects in the absence of any cues indicating the probability of success, that persistence is positively related to initial estimates of success, and that subjects who are high in fear of failure tend to *increase* their level of aspiration after failure and *decrease* their level of aspiration after success.

The third section, reporting studies related to

the application of achievement theory to the investigation of social problems was tantalizing with its suggested promise of providing solutions to pressing social problems. A study of vocational aspiration indicated that subjects high in achievement orientation tended to be realistic in their vocation aspirations, while students high in fear of failure tended to be unrealistic. A study of occupational mobility indicated that persons from the lower social strata who were high in achievement orientation were upwardly mobile in their occupations. Another study indicated that achievement motivation was positively related to being Jewish or Protestant, having entered college and graduated from college, to being in a supervisory position, to being married, to being in a high status occupation, to a tendency to plan ahead, and to capital income. A study of the effect of ability grouping in schools indicated that students high in need achievement showed greater growth in scholastic achievement and interest in school in classes grouped according to ability, while low need achievement subjects showed a decline in interest in school work, but no decline in achievement in homogeneous classes.

The fourth section of the book dealt with technical problems in the research. The book suffers somewhat from repetition of the basic theory in the chapters containing the research reports. This repetition is to be expected when one reads a series of dissertations or journal articles, but it probably could have been condensed more than it was for publication in book form. There are also many dreary "discussion" sections, agonizingly familiar to those habituated to reading doctoral dissertations, attempting to explain why predicted results did not occur as they were predicted. Occasionally these discussions are illuminating, but mostly they tediously list the possible sources of unexpected variance, without particularly illuminating the problem at hand.

On the whole, Atkinson and Feather have performed a valuable service. They have provided a paradigm for productive research on personality. They have reported the results of research stimulated by a theory that has potent implications for contemporary social problems, and they have described enough unsolved research problems to keep a regiment of graduate students occupied for a decade.

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Goldberg, Miriam, L., Passow, Harry, A., & Justman, Joseph. *The effects of ability grouping*. New York: Teachers College Press, 1966, 254 pp.

The question of ability grouping has for many

years given rise to polemics rather than to careful research and firm experimental conclusions. This book happily signifies an exception to this trend however.

This book represents a carefully executed and reported study on the effects of ability grouping, done in the New York City public schools. The subjects used in the study were 2,219 children, and they were followed over a two year period, beginning in the fifth grade. The basic question investigated by the authors was: Does the grouping of students according to their abilities (in this case according to Otis Alpha IQ scores) have any effect beneficial or otherwise on their academic achievement? The study also attempted to assess what effect ability grouping had on other variables such as interests, attitudes toward self, attitudes toward school, attitudes toward more and less able students, and teacher appraisal.

The basic findings of the study indicate that the presence or absence of extreme ability levels within a class (gifted and slow as defined by the study) does affect the academic achievement gains of the other students (for example, the presence of the gifted had an upgrading effect on the science achievement of the other students). Further it was demonstrated that the broad range classes (comprised of many ability levels) were consistently superior to narrow range classes in terms of achievement increments. The data leads the authors to conclude that the effects of grouping per se, is at best minimal. The data further support the notion that broad range classes (that is, not narrowing the ability range) are associated with the greatest academic gains for all pupils. While this is the general trend, this does not hold true for all subjects and for all pupils. An important point raised by the authors is that simply narrowing the range of ability does not result in greater academic achievement, although this might be the case if the learning experiences for these classes were varied on this basis. In the absence of carefully planned adaptations of content however, grouping of pupils, per se, does not result in positive growth in the academic achievement rate. Another interesting finding of the study is that narrow range grouping is not associated with negative effects on self-concept. In sum then, this book is a rather thorough study of the effects of ability grouping within the school system. Its findings are based on careful analysis of the data, and the conclusions do not go beyond the reaches of the data. The authors also point up the limitations that inhere in the study (for example, the findings with regard to the gifted are somewhat limited because of the small sample and the low ceiling on some of the achievement tests). For educators and psychologists concerned with ability grouping, and with maximum academic achievement, this book should merit

serious consideration. It can also serve as a point of departure for further experimentation and research in this area.

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White, Mary Alice & Charry, June.
School disorder, intelligence, and social class. New York: Teachers College Press, 1966, 92 pp., \$2.25.

Although this book's data seem a little unimpressive in ways which will be mentioned later, its implications are striking and far-reaching. During 1962-1963, the Westchester Association of School Psychologists of New York State and graduate students in experimental school psychology at Teachers College, Columbia University studied all pupils from 19 elementary school systems in Westchester County referred for the first time to a school psychologist. Although Westchester County is not generally representative of communities in the United States, the editors demonstrate that their data is representative of "... certain suburban rings around some of our largest cities" (p. 78).

According to the editors, the major purpose of the study was to determine if variables associated with school disorder (defined as referral to a school psychologist) were the same as those associated with adult mental illness. It was found that school disorder is a classification peculiar to childhood wherein IQ is a much more potent determinant of both diagnosis and disposition than socioeconomic status a variable which other studies have found to be more potent in the diagnosis and treatment of adult mental illness. While this finding needed to be demonstrated for a wide range of children, it is not especially surprising in view of the fact, for example, that the number of diagnosed retardates in a given population decreases as that population moves from childhood to adulthood.

To this reviewer the greater importance of the book lies in its emphasis on "action selectivity." Briefly, the authors discovered that "actions" ranging from initial referral to disposition led to subpopulations of children categorized primarily according to IQ and socioeconomic status (SES) rather than behavior. The authors effectively demonstrate that the choice of "action" is determined more by children's IQ and SES than by children's classroom behavior. Furthermore, it was found that earlier "actions" determined later "actions" in such a way that alternative

dispositions were increasingly precluded as the child moved through the "helping" system.

For example, regardless of the specific behavior pattern which led the child to his encounter with a school psychologist, more mothers of those children judged significantly higher on IQ and SES were seen by the psychologist than mothers of children judged significantly lower on IQ and SES. Whether this was a result of the school psychologists' choice or mothers' willingness is not relevant. The fact remains that children's IQ and SES rather than school behavior was associated with a specific diagnostic "action", i.e. seeing a child's mother. Obviously such differential diagnostic "action" results in differential information and attitudes about children which, in turn, lead to dispositions based upon apparently irrelevant variables.

Since the authors also found that children labeled "emotionally disturbed" were judged to be significantly higher on IQ and SES than children labeled "educational failures," and that "emotionally disturbed" children also tended to receive more complete helping services, it would appear that variables other than those specific behavior patterns which apparently had been the stimuli for the original referral were the major determinants of choice of diagnostic tools, diagnosis and disposition.

Although this reviewer feels that IQ has been used too rigidly in planning for young children, it might be argued that IQ should at least partially determine "action selectivity," and that it would be naive to expect it not to within a school setting. However, the authors also found that although both children labeled "brain damaged" and those labeled "culturally deprived" had similar IQ scores, the former were judged to have significantly higher SES scores than the latter. Thus, in this study, presence or absence of neurological impairment is at least to some extent a function of father's occupation!

There are some difficulties with the book. The significance tests of mean differences are unnecessarily crude since the authors compared confidence intervals only. The IQ data were based on different tests and there is some question about how the different scores were rendered comparable. The SES data were based solely on father's occupation in spite of the fact that much more sophisticated measures are available (i.e., ratio of number of family members to number of sleeping rooms). Finally, perhaps a reflection of this being a joint project, the writing is uneven and inferences are often not developed fully.

Although the scientifically rigorous reader may find much of the data "soft", there is enough data to convince this reviewer that the "help" we offer children is too often based on our needs and not theirs. This is a sobering little book which

should be read by all who counsel or believe in counseling children.

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Raychaudhuri, Manas. *Studies in artistic creativity: Personality structure of the musician.* Calcutta: Rabindra Bharti, 1966, 256 pp., Rs. \$15.00.

In 1945 Jacques Hadamard's long continued study of *The psychology of invention in the mathematical field* was published. Hadamard, a creative mathematician himself as well as a student of psychology, investigated creativity mostly by searching the meagre literature, conversing with and writing to, distinguished colleagues in mathematics, and by leisurely introspection. Hadamard realized that mathematical invention (or discovery) was but a case of invention in general, a process taking place in a variety of fields. He concluded that creativity was the result of preparation, incubation and illumination followed by verification afterwards.

Raychaudhuri's contribution represents a modern approach to much the same type of interest, for he is a student of Indian classical music and appreciates the nuances of that traditional musical language. Raychaudhuri is a well trained modern psychologist as well. He is one of the two Indian members of the Society for Projective Techniques. Hence, his investigation of his specialty employs modern psychological tools. Indeed, the book is derived from the author's doctoral dissertation at the University of Calcutta. Further investigations, requiring several years to complete, however, have gone into the book. It explores attributes of personality and social, environmental, and developmental forces that distinguish creative persons in the musical arts.

After a long, hard look at the literature (his bibliography extends to 17 pages) the author, as most of the rest of us, finds that our present knowledge about the determinants of creativity is nebulous. In his investigation 30 creative and successful professional musicians, engaged in various branches of the musical arts such as vocal, instrumental, classical, light, devotional, folk, and romantic-modern, were compared with a control group of 30 matched individuals rated as non-original and non-creative by their superiors and peers. Both groups were also selected by high scores (the experimental) or low scores (the control) on a test designed to measure the level of perceptual tolerance of, and seeking for, complexity and ambiguity. Both groups were then ad-

ministered a battery of tests consisting of the Rorschach Psychodiagnostics, the Thematic Apperception Test, and the Szondi Test. Then, a 50-item rating scale, constructed from personality variables found in the review of the literature on creativity, was given to two clinical psychologists. They were also furnished with the projective test protocols and were asked to rate each of the unidentified subjects on the basis of their global analysis of the projective test data. On the average, the evaluators (who remain unnamed) required two hours for studying each set of protocols.

Of all the items, 28 were found to statistically differentiate between the two groups at the .05 level of confidence or better. A majority of the musically creative persons were found to share a common personality pattern, but considerable variation was found within the communality.

Among Raychaudhuri's findings were these: The creative musician has exhibitionistic needs to derive narcissistic satisfaction. Narcissism can gear the individual to productive and progressive activities if the accompanying needs and drive are adaptive to the societal context. Though he is depressed and conceives of the environment as being cold, hostile, and unfriendly, he seeks intimate interpersonal relations. He feels challenged by frustration and anxiety inducing situations rather than being overpowered and crushed by them. Creative persons may have higher thresholds of frustration tolerance than the average person and all the more are stimulated by these situations to such an extent that they tend to reorganize their energies to strive all the harder. Creative performers seen in psychotherapy by the present reviewer frequently tell of vomiting, or feeling like it strongly, before a performance despite years of successful appearances. Less creative people would long ago have abandoned such stress producing situation—perhaps upon the advice of their psychotherapist. Whereas, creative performers find it stimulating.

Further, it is the creative person who does not give overt signs of primitive impulses and aggressions, but, instead, exhibits signs of sublimation and who tends to channel aggression into socially accepted activities.

The creative musician was found to have a rich fantasy life, and plastic and mobile thinking processes which appeared to be regressive as well as progressive, with a greater availability of primary material. Further, his thinking and expressions were characterized by a radical departure from the usual, the structured, and the obvious. His perceptual organization was marked by a tolerance of, and a seeking for perceptual ambiguity, complexity, and phenomenal imbalance. On the whole, he prefers activities that permit individualistic implementation, self-expression, and

use of personal resources. The primitive functioning of the creative person has to be differentiated from the primitivity of the schizophrenic. The creative person has greater ego strength, flexibility, and maturity. The schizophrenic is immature, lacking in controls, and tends to establish a syncretic relation between himself and the outer world. Also, the schizophrenic is practically overwhelmed by the primitive functions and is unable to revive advanced levels of functioning.

The creative musician does not accept parental ideals to set his vocational, or other goals. One creative musician of concert and recording caliber, known to the present reviewer, recounted that his mother felt that he was not a successful performer. At his age, if he were successful he would be on the Lawrence Welk television show. Nor is the value system of the creative person determined by the prevailing cultural norms. He expresses strong ego involvement, determination, and convictions in his work. His work is a self-actualization. Indeed, the creative musician identifies himself with his work so completely that the work becomes the alpha and omega of his existence. As one performer-composer, known to the present reviewer, remarked to his wife after obtaining a position on a university faculty, "I cannot believe that they are paying me to do what I love."

The musicians of the present study, contrary to earlier findings, were not found to have a strong capacity for sensuous gratification. Equally significant was the absence of any leadership traits or needs to dominate. While they experience an indirect need for achieving dominance by means of a narcissistic omnipotence, they seem to avoid any direct and conscious expression of this drive.

Traditionally the creative mind has been described as possessing a wealth of symbolic and abstract associations and expressions. But Raychaudhuri's musicians did not show any difference from the average person in regard to this attribute. This may be explained by conjecturing that musical creativity largely involves prelogical and preverbal thinking. Preverbal and prelogical association fields utilize ideational "bits" that are not codified by words. Musical expressions are mostly nonverbal and nonlogical. The language of music can easily move in the preverbal, prelogical level where conscious rigidity is absent and new combinations and gestalten can easily appear owing to the absence of pre-established connections in the thinking process.

This finding is especially interesting in view of one of the important messages in Hadamard's earlier investigation of inventiveness in mathematicians. He found that internal thought, especially when it was creative, employed other systems of signs, more flexible because they were less standardized than languages. To him the

work of discovery implied the cooperation of the unconscious. His findings seem to agree with those of Raychaudhuri.

The author also conducted a quasi-structured, life history interview with his creative musicians and his noncreative subjects. He found no evidence in support of the genetic transmission of creativity. The musician's parents had little or no professional musicality. The findings would seem to agree with most of the work in the field, with the exception of that of Galton and Scheinfeld. Creative people characterized their childhood home conditions as being uncomfortable, uncongenial, and distressing. However, Raychaudhuri wisely opines that the creative subject consciously tended to distort facts in order to support the myth that the artist's life is one full of oppression, rejection, and privation.

Fifty per cent of the male creative subjects, as compared with 18 per cent of the male controls, were found to be emotionally more identified with their mothers, despite the usual familial, societal, and general cultural pressure to identify with the father. To these musicians it was their *guri* or *ustad*, favorite names for teachers or fellow students, in the creative arts, who were the major influential persons in their lives. By being able to find substitute father figures, for identification, they succeeded in attaining a normal sex role. As might be expected, the artist's mothers were found to be overprotective, anxious, compulsive, and neurotically pessimistic about their children's futures.

In group activities and peer relations, the musician had a poor adjustment. He was mostly considered peculiar by his peers as he tended toward non-conformity. He took up music to achieve fame and social recognition by means of the talents that provided him with many gratifying experiences. But, he considered that his social and economic status was not commensurate with his talent. The factor of strong ego involvement explains why he continued in a no bread occupation. Generally he was so engrossed in his creative pursuit that no particular leisure time activity was engaged in regularly. As Carl Rogers put it, the creative person is "always discovering himself and the newness in himself in each succeeding moment of time." He liked other professionals such as artists, educators, and physicians, and disliked the work of brokers, clerks, and attorneys.

The biographical items seem to be less differentiating between creative and noncreative subjects than the rating scales. No specific developmental pattern is yet uncovered which is causally connected to the appearance of creativity. The indifference, apathy, coldness, or family discord characterizing the life many creative musicians could easily have set the stage for later malad-

justment. The very different reactions of the creative people seem to parallel the findings of Roe on eminent scientific men. One is forced to wonder, again, about current theories of developmental psychology and of personality. However, it may be that the more adjusted and mature subjects volunteered to serve. The aversion of some creative people to the techniques of science have been expressed by Auden, when he wrote: "Thou shalt not answer questionnaires or quizzes upon World-Affairs, / Nor with compliance / Take any test. Thou shalt not sit / with statisticians nor commit / A social science."

It is the verbatim excerpts of these volunteers, however, which provide the reader with a rich insight into personalities of Indian musicians and their milieu. So, in a way, they may be more helpful than the more informatively precise rating scale items.

In commenting upon possible shortcomings in his study, Raychaudhuri again strikes a universal note: The divergences and convergences of findings and interpretations in creativity studies can be accounted for, in part, by the differences in the criterion of creativity, and also by the nature of the tests used and by the *a priori* hypotheses.

The book is a worthy addition to the library of volumes on psychological aspects of creativity. In this study of creative people the twain does meet.

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Glasser, Alan J. & Zimmerman, Irla Lee, *Clinical interpretation of the Wechsler Intelligence Scale for Children*. New York & London: Grune & Stratton, 1967. pp. 152.

In this short volume the authors have successfully filled a long felt need in the field of intelligence evaluation by providing for the user of the WISC interpretive material that previously was unavailable or broadly scattered through the measurement literature.

Although it will be of considerable usefulness to the experienced professional psychologist its greatest value is unquestionably as a reference manual for the neophyte tester or the student enrolled in a course in intelligence measurement.

The authors have kept the beginning tester in mind throughout the book and have therefore included chapters on administration and scoring and upon reporting test results to referral sources.

The major portion is devoted to an analysis of

the WISC subtests. The probabilistic approach is de-emphasized, which should please the statistically unsophisticated reader, and considerable reliance is placed upon Cohen's factor analysis of the WISC and upon Guilford's Structure-of-Intelligence Components as applied by Bonsall & Meeker to the WISC content. Following a discussion of each of the subtests in terms of the Structure-of-Intelligence model the authors evaluate the advantages and limitations of each in terms of their own clinical experience with the test. Each subtest analysis concludes with a Summary of Interpretations in which the possible significance of high and low scores is considered.

The projective aspects of the WISC are confined to a single chapter and are described and explained as hypotheses rather than absolutes. Emphasis is placed upon understanding the child's response "style" rather than upon the discovery of obscure personality dynamics.

It is difficult to talk of deficiencies in a work making the unique contribution this one does. There are, however, certain aspects of the book open to criticism, particularly if it is to be used by inexperienced examiners or students in measurement courses. In the chapter on administration and scoring the authors speak at some length of "extension testing" which consists of *rephrasing* and *simplifying* test items in order to "help the examiner understand a *specific* failure or weakness in an otherwise adequate test" (p 14). When pertinent, the authors state, "an answer can occasionally be given the child" (p 11). What such procedures would do to test-retest reliability is obvious. Unfortunately too, the single

line disclaimer that "there can be no substitute questions which receive credit in the scoring" (p 14) is too easily overlooked.

In discussing the reporting of results the authors include a sample write-up and a "worksheet" from which the report is derived. In both instances reference is made to a higher potential for the subject ("between 110 and 115") but no indication is given as to how this rather specific estimate was reached.

The final chapter is given to a discussion of adaptations and brief forms of the WISC and justification for their use is based upon saving time and upon testing handicapped children. Better tests than the WISC are available for use with the handicapped and seldom is time saved by the use of a brief form of real significance. Of greater concern is the fact that results obtained with one brief form are not, by definition, directly comparable to another. For example, if we are to believe that the different subtests measure different intellectual abilities, it is quite apparent that different attributes are measured by Nichols & Nichols' I-A-D-PC and Smith's A-S-PA-Co, despite nearly equal correlations with the complete scale.

The experienced professional will definitely find a place for this book on his office shelf, and I predict that students and relatively green test administrators will be tempted to sleep with it under their pillows.

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Letter to the Editor

Dear Sirs,

I am enclosing the subscription fee for one year. I am much interested in the projective psychological technics, having found in past time that they had helped me really very much.

I suppose that some news from behind the Iron Curtain might be interesting for your readers. I escaped from Czechoslovakia in last year. In most of the communist countries the projective tests are prohibited. When I wished to apply some of them, I had to keep it secret. I appreciate most of them very much. In my more than ten years of clinical practice, I have found a good deal of help just in projective technics. I am sorry when I have to face some opinions of American specialists who do not appreciate them and repeat some nonscientific arguments, usually used by communist officers in the communist countries.

Yours truly,

Dr. George E. Vesely
77 Forbush Avenue
Midvale, Utah 84047

rower, Robert McCully, Louise Zuker, and Walter Klopfer.

The reduced bookings (of £11) can only be utilized through January 1, 1968. Rooms at the University Hostel at a reduced rate can only be guaranteed if the bookings are received by January 10, 1968. Further inquiries can be made from the Administrative Committee chaired by Mrs. Celia Williams, which is located at 32, Willes Road, London, N. W. 5.

* * *

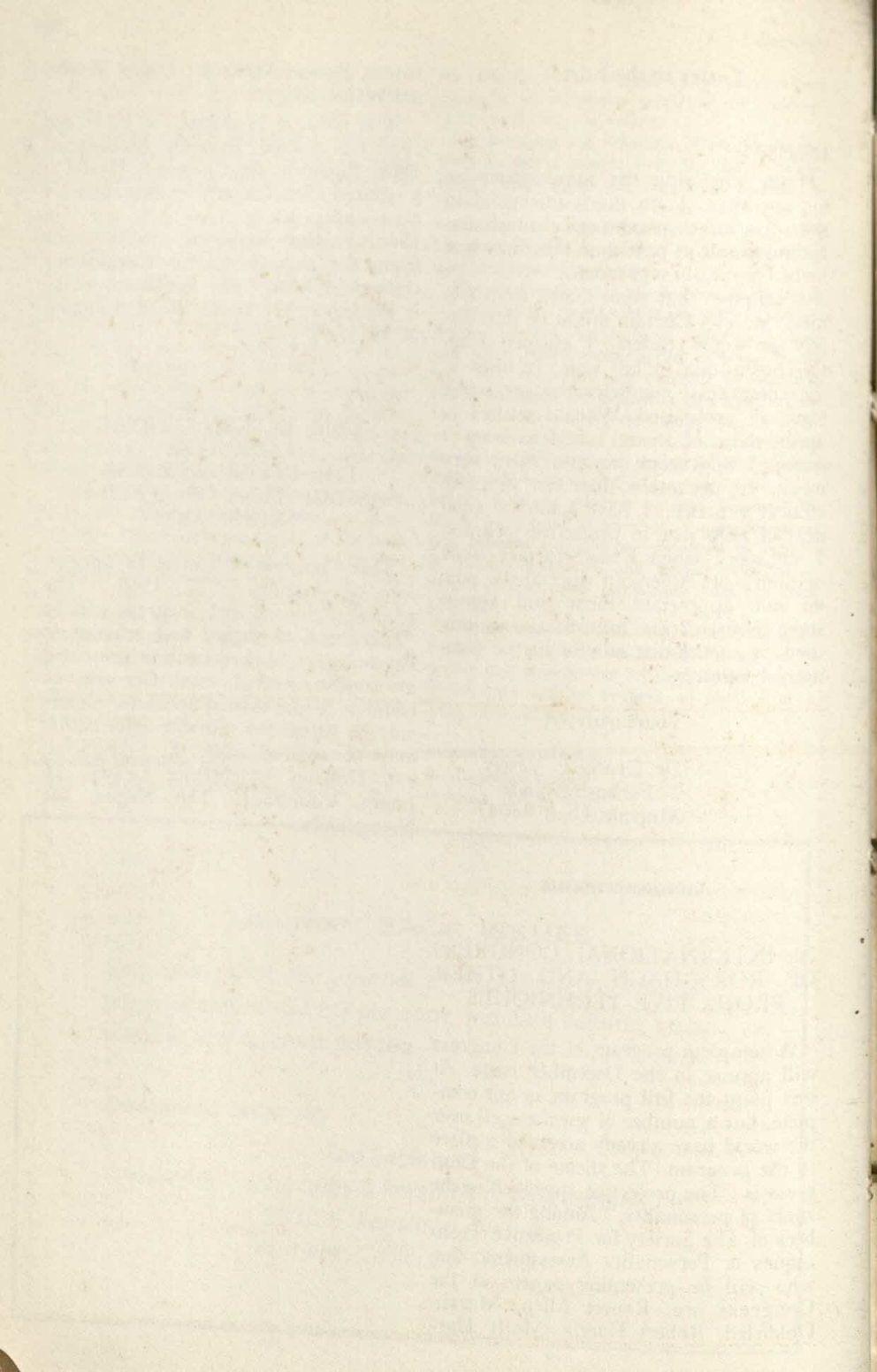
XVIth INTERNATIONAL CONGRESS THE INTERNATIONAL ASSOCIATION OF APPLIED PSYCHOLOGY

This Congress will meet at Amsterdam on August 18-22, 1968. The general theme of the Congress will be "Interaction of theory and practice in Psychology." Material will be presented in English, French, and German. In addition to the invited speakers, papers may be submitted. Further information may be secured from the Secretariat, c/o Holland Organizing Centre, 16 Lange Voorhout, The Hague, the Netherlands.

Announcements

7th INTERNATIONAL CONGRESS OF RORSCHACH AND OTHER PROJECTIVE TECHNIQUES

A complete program of the Congress will appear in the December issue. At this point the full program is not complete, but a number of speakers all over the world have already accepted a place in the program. The theme of the Congress is "The projective approach to the study of personality." Among the members of The Society for Projective Techniques & Personality Assessment, Inc. who will be presenting papers at the Congress are: Robert Allen, Marvin Goldfried, Robert Harris, Molly Har-



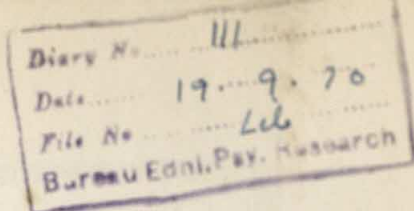
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It is with great regret that we
learned of the death of one of
our consulting editors, Dr. Paul
Daston of the University of Mary-
land.

"DOUBTLESS THERE ARE OTHER PATHS"¹

H. BARRY MOLISH

Norwich Hospital, Norwich, Connecticut

As the incoming president of the Society, I cannot help, but with due concern take cognizance of the declining status of projective tests and the general contemporary deemphasis of the entire role of psychodiagnosis in the field of clinical psychology. We cannot sit back and say that this is all part of the usual "passing parade"; that "change is forever with us"; and that, if we wait a few more years, the "pendulum will swing in the other direction". Even though history may support these rather platitudinous points of view, the communication of any revolution of thought in scientific endeavor is dissatisfaction with the status quo and the need to look ahead to new horizons. Let us not forget that the turn to projective tests in the ever-continuing quest for understanding personality structure and psychopathology had its inception as a sort of rebellion against the status quo position of the psychometric approach to personality assessment. Thus, the present rebellion of those who now foster the purely objective behavioral approach cannot go unheeded. Rebellions in scientific thinking, even though they may eventually prove themselves as not as provocative and fruitful as their inception would have us believe, leave their "residues" to posterity. Such "residues" within themselves can contribute to knowledge even in the dissonance in scientific thought that they may provoke.

The contemporary attack upon the projective tests is still reverberated in the statistical vindictives of clinical vs. actuarial, nomothetic vs. idiographic, reliability, validity, etc. But the rebellion is even more profound than this. It is a rebellion against the entire practice of clinical psychology as we know it today. In several symposia at the 1967

APA Convention which concerned behavioral therapy approaches, the basic philosophy of psychodiagnosis was challenged. One of the eminent speakers in one symposium referred to how much time he had wasted in learning the Rorschach and other tests as well as the principles of psychodiagnosis. Furthermore, it was boldly stipulated that we waste our time being concerned with the principles of evaluation and differential diagnosis, as far as the treatment of patients is concerned.

For those who are interested and involved in training young clinical psychologists, this attitude is certainly challenging. More important, however, is its discouraging effect on the student, who may be looking forward to the contributions he may make in the future as a psychodiagnostician as part of his role as a clinical psychologist. Recent literature concerning projective tests is no more encouraging or supportive. Murstein's (1965) *Handbook of Projective Techniques*, Zubin, Evan & Schumer (1965) and numerous journal articles "add insult to injury" to the scorching criticism of Meehl raised in the past. The concluding comment made in the Epilogue of Zubin's text, sounds like "knelling the toll of death" to projective tests:

"Projective tests were once young and promising. Today they are only promising. How long can they continue to promise without delivering. Is it not time to collect on the promissory note?" (Zubin et al, 1965, p. 610)

Yet Zubin and his collaborators end their epilogue in more optimistic fashion:

¹ Message from the President of the Society for Projective Techniques & Personality Assessment, Inc. at the 1967 Annual Meeting.

"Furthermore, some of the claims and clinical hunches which the experimentalists now disdain may become the cornerstones of new, objective findings when the more powerful tools of the future become available". (Zubin et al, 1965, p. 611)

A search for new horizons and a "bold new approach" to discover these "more powerful tools" is what is needed. At the 1967 convention a symposium arranged by Division 12 (APA, 1967, p. 503) on "changing needs in clinical diagnosis" bespeaks such need:

"Clinical psychology is in a state of change and traditional philosophies...current trends include the development of radically different procedures stemming from the methods and techniques of the experimental psychologist; the application of modern data processing and automation technology."

This is a time for verdant understanding among seasoned clinicians. Yet it will be a most difficult time to understand. Whereas in the past, the seasoned clinician in his psychodiagnostic practice has been comfortable and well accepted in his reliance upon his intuitive, empirical, "third ear", he is now informed that at least his research endeavors can no longer rely upon his free association methods in collecting data; at least no longer will such data be regarded with respect and status.

Those clinicians who are staunch proponents of the clinical method, in contrast to their antagonist who supports actuarial methods, still cast vindictive adjectives at each other. A recent text by Marks and Seeman (1963, p. 4), classifies such adjectives with clarity. Proponents of the clinical method refer to their methods as, *configural*, *dynamic*, *fresh*, *global*, and *holistic*. They regard actuarial methods of personality assessment as *atomistic*, *fractionated*, *simple-minded*, *static* and

superficial. Those proponents of the actuarial method feel that their orientation is *empirical*, *nomothetic*, *objective*, *operational*, and *scientific*. They regard clinical methods of evaluating experiential data in personality assessment as *intuitive*, *muddle-headed*, *subjective*, *unscientific* and *vague*.

Many of these issues have been poignantly discussed by Robert R. Holt (1967, p. 25) in his treatise concerning experiential data:

"There can be no denying that an experiential subject matter is more ambiguous, frustratingly impalpable, and difficult to deal with than the numbers generated by a machine within which a captive organism is responding. The history of psychology has persuaded our majority, with some justification, that the objective behavioral approach has been productive, while the experiential orientation has floundered badly. Surely the structuralist under Titchener's misleadership missed the point completely by trying to *reduce* inner experience to atoms of sensations and to rule meaning outside psychology's realm. Nor do I find the contemporary rhapsodies of many existentially intoxicated psychologists much more promising with their disdain for scientific method."

In the long run, the most provocative contributions in clinical psychology and psychodiagnosis which concern the experiential data in personality assessment will be those which are founded on a coalescence between the subjectivists and the so-called "super-objectivists". If we address ourselves to only the strict lawful relationships between environmental stimuli and behavior as the behaviorists would like us to do, then, as Holt aptly points out, we are "attempting the impossible as well as the inappropriate." Holt (1967, p. 25) in quoting Pol-

anyi drives this point home with undue clarity:

"Polanyi shows how the irrational and passionate pursuit of the notion of purely rational, dispassionate, uncommitted objectivity has invaded all branches of science and has led to confusion and self-deception. Any process of inquiry unguarded by intellectual passion would inevitably spread out into a desert of trivialities."

It was just this barren and arid "desert of trivialities" in describing personality structure which precipitated the revolution against the psychometric approach to personality assessment which gave birth to the projective test era.

At the present time many clinicians who in the past have relied upon the projectives, have turned to the MMPI in their quest of what appears to be the unattainable pure objectivity in personality assessment. The MMPI is regarded as a sort of "Diogenes Lamp" to search out the "honest", objective and lawful relationships of experiential data. Yet, such MMPI data fed into a computer are considered by some clinicians to be "cold" residues of "warm" experiential data of personality.

The issues concerning MMPI data have been brought into clear focus by Dr. Joseph Lyons (1967). Lyons makes a distinction between *primary data* and *about data*, (*meta data*). *Primary data* arises directly from conscious awareness. The awareness about one's experience is referred to as "*about data*" (*meta data*). There are subjects who give nothing but *meta data*; they know exactly what the examiner is after. In some subjects this may be evidence of malingering. Objective tests, therefore, must consider this distinction between *primary* and *meta data*.

There are those clinicians who have become proponents of "*hard*" or *meta data*. In contrast, other clinicians adhere to the "*soft*" or primary experiential data in personality assessment.

Lyons (1967, p. 15) appropriately describes their dilemma as follows:

"What both sides would like, of course, is somehow to have their experiential cake and eat it, too — that is to obtain *primary data* which have all the scientific usable properties of *meta data*."

The staunch "super-objectivists" would regard that such a solution is next to impossible. Some clinicians feel that success is possible and has already been partly achieved.

I would hope that the solutions to these methodological problems will direct us along the right path. Perhaps we do not have to regard ourselves in the same dilemma as Stephen Crane's character in his searching out the path of truth. Dr. S. Rains Wallace (1965, p. 11) has used this parable in describing similar "trials and tribulations" of psychological assessment:

"Once he found this path, he was aware it was impossible because of the thick growth of weeds. 'Aha,' he said, 'I see that few, if any, have preceded me.' As he came nearer to the path, to his dismay he noticed that each of the weeds was a sharp sword blade. 'Ah well,' he said, 'doubtless there are other paths'."

Who among us can allay his own anxiety (admittedly, experiential; the "soft," "primary" data of this projective path of "sharp sword blades") in his attempt to search out the truth along such a methodological frustrating path? This is the challenge we must all face!

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INTIMACY AND DISTANCE IN THE INTERPERSONAL RELATIONSHIPS OF PERSONS PRONE TO DEPRESSION

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Summary: Self and ego boundary changes critical to the development of depression are hypothesized to have occurred in the second six months of life. An analysis of these changes suggested that persons prone to depression tend to form interpersonal relations combining intense intimacy with sharp separation. Hypotheses concerning the manifestations on the Rorschach test of these relationships and attendant concerns were supported at a satisfactory level of statistical significance.

Theoretical Formulation

The patterning of intimacy and distance in persons prone to depression¹ has been explored theoretically as a part of a broader study of depressive phenomena as they relate to infantile self-boundary development (Fast, 1967). The present study is an attempt to test some aspects of the theoretical formulation empirically.

A change in self-boundary is hypothesized to occur in the second six months of life, the period traditionally accepted in psychoanalytic theory as central for the development of depression (Abraham, 1911; Abraham, 1924; Klein, 1948). The earlier self-boundary is one in which all that is satisfying is included within the self-boundary and all that is frustrating is both outside the self and unrelated to it. Therefore, in any event involving another person, that person is perceived as part of oneself if the experience is satisfying, and irrelevant to self if it is not. Various factors, including the infant's growing recognition of the stability of objects and their continuity in time and space usher in a more mature boundary pattern in which the self-boundary separates what is factually self (with good and bad characteristics) from, what is in reality, other (also recognized as

having good and bad aspects). Now another person may be perceived as distinct from oneself without being alien, and related to without becoming fused with oneself.

In persons prone to depression the more mature self-boundary appears to have been established but the more primitive mode of categorizing events has not been entirely superseded. As a result any attachment to another person easily becomes equated with fusion with him, and any separation is seen as alienation. Clinically the tendency to equate relationship with identity is readily observed in depressed persons' tendencies to become totally like a loved person, taking on his values, tastes or hobbies. A somewhat different manifestation of the same tendency is illustrated by a depressed woman who felt as though her child were as much a part of herself as an arm or a leg, and was subject to anxiety close to panic when his behavior was independent of her will, as if indeed her arm or leg had acted outside her volition.

This fusion is also feared, however, as loss of identity because it threatens the self-boundary which separates self from the other person. A young adult, for example spoke of finding herself helplessly accepting everything her boyfriend wanted or valued, and asked, in tears, "but where is the I?" Another allowed herself no yielding to the pleasure of any compliment because it would make her totally vulnerable to and in the "orbit" of the man who offer-

¹In this paper the term depression refers to the syndrome which has been called depressive illness or melancholia, rather than to the general affective experience of depression. The question of the relationship between the two is left open at this time.

ed her that pleasure. A woman felt a sharp threat to her feeling of self whenever she held a paring knife or the steering wheel as her mother had, as though that identical behavior obliterated the boundary between herself and her mother.

To recognize oneself as distinct from the other, however, is not an acceptable solution because any sense of separation is too readily infused with feelings of alienation. A depressed woman, for example, had begun to encourage independence in her son, but when he became a "safety" at school without reliance on her help, her pride was drowned in a feeling that the boy was now totally lost to her. Another felt a pang at having a minor difference in taste from a friend as though this would terminate the relationship. The inability to allow a difference of opinion, but to argue interminably about minor issues could be shown in a depressed person to reflect little interest in the issue itself, but a fear that total separation would attend the slightest lack of unity.

Unity with another person, or alienation from him may be perceived as the only available alternatives but both are unacceptable: unity because it represents a loss of identity; separation because it evokes feelings of being entirely alienated. In this dilemma an unstable compromise tends to be formed in which both closeness and distance are represented in relationships without modulation by one another. To love a man committed to another woman, to love a man known to be homosexual, or to love at a distance are among the ways that total commitment can be offered in the safety of absolute separation. In a mother-child relationship, intense, continuous, intimate argument provided a means to combine close involvement with the necessary separation. The theme of a patient's responses to interpretations was that they were ridiculous but that he would have to believe them, thus effectively maintaining unity with and separation from the therapist.

This compromise is both painful and unstable, and persons prone to denre-

sion appear clinically to be struggling constantly to overcome this conflict and to achieve the goal of more mature object relationships where intimacy and individuation are not mutually exclusive. This striving seems often to be represented in a drive toward independence, though this too tends to become colored by the conflict. Jacobson's patient (Jacobson, 1954), for example, prided herself on an independent achievement but equated it with no longer having any need for love, as though independence and love could not co-exist. A depressed college student escaped a painful emotional involvement with a man, but in her independence joined a peace organization where the same combination of total commitment with basic reservation appeared to be beginning again.

On the basis of this theoretical formulation the authors predicted that depressives' Rorschach responses would indicate the salience for them of issues of intimacy and distance; the compromise in which both are represented, and the attempt to achieve a higher level of independence.

Method

Subjects. The subjects were college students registered in school at the time of testing. They were selected from all students who had applied for assistance to a university counseling service or who had participated in a therapy research project (whose subjects were not and had never been in treatment for emotional problems). To be eligible, a student must have both a Rorschach protocol and an MMPI profile available. From this group, subjects were selected on the basis of the authors' judgment of the MMPI profile only, with one exception, a depressed patient included on the basis of presenting complaints for whom no MMPI could be secured. Reliance was on the judges' evaluation of the MMPI rather than a particular score elevation. All subjects designated manic, depressive, or schizophrenic had standard scores of over 70 on the relevant scale. Both

Table 1

Number of Individuals, Number of Responses, Sex, and
Sample Origin in Four Sub-Groups and Two Combined Groups

	N	R	Sex		Sample Origin	
			M	F	Counseling Applicants	Research Subjects
A. Depressive	19	608	10	9	14	5
Manic	12	433	10	2	2	10
Schizophrenic	12	633	10	2	9	3
Unselected	20	567	18	2	7	13
B. Manic-Depressive	31	1046	20	11	16	15
Schiz. + Unselected	32	1200	28	4	16	16

manic and depressive persons were provisionally included because they are generally understood to reflect the same syndrome, though it was uncertain whether the two conditions would be reflected similarly in the responses of individuals to the inkblots.

Four groups were selected:

- A. Students judged to show clearly depressive profiles;
- B. Students judged to show clearly manic profiles;
- C. Students judged to show clearly schizophrenic profiles.
- D. A group whose only criterion beyond initial inclusion was that they were clearly ineligible for Groups A, B, or C.

Table 1 shows the number of subjects in each group.

The resulting groups were predominantly male (See Table 1), as is the population from which they were selected, with proportionately more female subjects in Group A. Because inspection showed no sex-related differences in responses to the relevant variables, this disproportion was not considered detrimental enough to warrant discarding the sample.

Rorschach Measures: The Rorschach categories to be evaluated fell into three groups:

1. The dilemma of intimacy and distance. Group 1 consists of three codes.

The first was thought to represent the depressive's compromise in which both unity and separation occur. *Struggle* was coded when a pair of people or animals showed *both* an indication of unity (e.g. "Siamese twins" and "wearing the same hat" or activity such as dancing together or dueling, which implies adherence to an agreed-on set of rules), *and* indication of disunity (e.g. any indication of mutual disagreement, hostility, attempt to separate, or competition). Examples are, "Siamese twins... mad because they're joined;" "elephants...going in opposite directions, but their heads moving back toward each other;" "two men Indian wrestling;" or "these two are dancing, but there's blood." Pairs were not coded *Struggle* if they were non-interacting (e.g. "two butlers"), if they were engaged in cooperative activity with no indication of conflict (e.g. "doing a folk dance"), or if there was conflict but no indication of mutuality (e.g. "fighting;" or "one sneers at the other").

The other two codes concerning the interpersonal struggle are *Join* and *Split*, thought to represent the salience of closeness and separation for the depressed person. *Join* was coded for any emphasis on things being joined. Two points were scored if the objects were not necessarily or regularly joined (e.g. "hands tied together;" "people joined

by darkness;" "dancers merging"). One point was scored for objects regularly joined but where the joining was emphasized (e.g. "cherry pits, the stems joined;" "spine, the segments are together;" or "two parts of the statue, connected here"). Later analysis showed that only the 2-point responses differentiated the diagnostic groups. *Split* was coded where a separation left two parts, regularly joined, separated from one another. Repaired splits or emphasis that no split had occurred were also scored. Breakage into more than two parts (e.g. a shattered rock) or parts broken off a whole (e.g. wings torn off) were not scored. Scored examples are, "rock that's been cut through;" "a float bridge, just opening...a draw-bridge."

2. The attempt to achieve a more mature level of object relationship. The second group of scores concerned the struggle to escape the dilemma involving the opposing needs of closeness and separation. Three codes were formulated. The first, *Strive*, was coded whenever an individual (human, animal, or object) made an effortful attempt to surmount something (e.g. "sea of filth through which they struggle;" "holding it so it can't get out"). The second, *Superior Goal*, was coded when a physically superior position or object was a valued or powerful one (e.g. "battlements of a castle;" "person on a platform speaking to a crowd"). In the third, *Suspension*, three points were scored where the suspension of an object was clear and unusual (e.g. "a brooch...just in the middle of the air;" or "a castle rising above a cloud"). Two points were scored where the suspension was explained but remained important in the concept (e.g. "a bird is on top of darkness...flying;" "Christ hanging on the cross;" or "hats blowing up in the air"). One point was scored where suspension was less central to the concept (e.g. "a bird flying;" "boots hanging from a boot tree;" or "the wind is blowing her skirt"). Analysis of this scoring process showed that percepts given one point did not differentiate the

groups, and that no additional group differentiation was achieved by separating the two-from-the three-point responses.

3. The use of texture and achromatic color. These scoring variables were not derived from the theoretical formulation under discussion. They were included because they were Rorschach indices found useful clinically in relation to depression. The use of texture has been related in Rorschach theory to anxiety about being close. Soft texture, (e.g. "fur") and hard texture, (e.g. "a rough stone") were coded separately. For each group three points were scored where the texture was specified in the performance proper or without probing in the inquiry; two points if it was mentioned later in the inquiry; and one point was sparingly coded if the response clearly implied texture which was unarticulated, (e.g. "a tiger skin rug."). The use of achromatic parts of the Rorschach patterns as black and white colors has generally been considered to be relevant to depression. Black and white were coded separately. As in the scoring of *Texture*, three points were scored if the color was mentioned in the performance proper or immediately in the inquiry; two points where it was mentioned later in the inquiry; and one point in a few cases where black or white seemed clearly implied (e.g. "coal" or "negroes").

The hypotheses, therefore, were that Group A (possibly combined with Group B) would score higher on eight codes: *Struggle*, *Join*, *Split*, *Strive*, *Superior*, *Suspension*, *Texture*, *Achromatic Color*.

Procedures. Scoring was done from written codes by the two authors following practice coding in which at least 70% agreement was reached, and followed by mutual decision on borderline cases.

The t-test was used to evaluate the statistical significance of the differences between groups. The error introduced in non-parametric tests by small expected frequencies in some categories, and large numbers of categories with zero frequencies was con-

sidered to be greater than that introduced by assuming that the scores met the criteria for the t-test. Also, because the manic and depressive groups had smaller mean response totals and therefore statistically less opportunity than the schizophrenic and mixed groups for the hypothesized characteristics to occur, differences that were found in spite of this might be accepted with somewhat increased confidence.

Results

Inspection of the final scores showed that manics and depressives scored similarly and could be combined into a single group, referred to from now on as the manic-depressive group. As an additional precaution a separate analysis was made comparing only the depressive group with the comparison group. The appropriateness of combining the manic and depressive groups was supported by the fact that the results of this analysis indicate that the acceptance or rejection of each hypothesis was independent of whether the depressive group or the combined manic and depressive group was used. The schizophrenic and unselected groups could also be combined into a general non-manic-depressive one without marked loss of precision. Table 2 presents the results. Statistical signi-

ficance levels are beyond the .05 level with regard to 5 of 8 hypotheses, and in the remaining three, differences are in the expected direction. Two of three hypotheses concerning greater evidence of interpersonal struggle (Group 1) and of orientation toward a more mature interpersonal relationship (Group 2) were supported. In each group one category (*Join* and *Strive*) did not reach an acceptable level of confidence. In Group 3 the *Texture* responses showed the expected differences. Separate scoring of "hard" and "soft" texture showed that manics and depressives showed little difference from the other groups in "hard" texture and that the difference in the total scores was carried almost entirely by the "soft" texture scores. The total *Achromatic Color* scores showed no reliable difference among groups, but in this single category the manic and depressive groups differed markedly: depressives more often used black; manics used white more often (Dep.: W, 24; B, 92; Man.: W, 39; B, 27; d.f. 1; X^2 4.11; p. 05).

Discussion

The theoretical formulation which stimulated this study is supported by the results. The combined manic and depressive groups focus more on is-

Table 2
Comparison of Manic-Depressive and Mixed
Group on Rorschach Variables Related to Depression

	Manic-depressives N=31		Non-manic-depressives N=32		t
	X	SD	\bar{X}	SD	
1. Struggle	.87	.87	.25	.43	3.55*
Join	1.58	2.18	.88	1.87	1.37***
Split	.48	.62	.13	.42	2.68*
2. Strive	.61	.79	.41	.55	1.19
Sup. Goal	.61	.94	.25	.50	1.90**
Suspension	3.48	3.07	1.78	2.50	2.39*
3. Texture	10.10	6.92	6.22	6.18	2.32**
Achrom. Color	5.87	6.26	4.47	4.81	.99

* Sig. at .01 level of significance

** Sig. at .05 level of significance

*** Sig. at .10 level of significance

sues of unity and separation than the mixed group, and more often combine unity and separation in a single percept. The particular content of individual responses often poignantly illustrated these persons' dilemma: "an insect...a cloud holding (it) so it can't get out; (it is) a blanket;" "...trying to pull this apart or hanging on;" or "eagles...almost going to grow into the tree...probably unable to walk anyway." The hypothesis that manics and depressives continue to strive for more mature, differentiated independence was also supported statistically. The themes coded in the *Strive* category seem particularly illustrative, though that category did not show the predicted statistical difference: "two bears trying to climb a mountain...doubtful if they'll make it...if they do...hard to survive because they're adapted to this environment further down and not to the mountain top;" or "looks like everything trying to go upwards but it's all in circles...won't do for them what they wanted it to (if they get to the top)...it's meaningless."

The major focus of the study was on interpersonal characteristics of persons prone to depression. The question of the similarity of mania and depression with regard to this characteristic was initially left open. Traditionally in psychiatric and psychoanalytic thinking mania and depression have been seen as two aspects of the same basic process. The MMPI scores of the two groups, on the other hand, were sharply different. The results of this study can add only a little to the consideration of the problem of the similarity of the syndromes. In all categories, excepting their use of *achromatic color*, the responses of the manic group were more like those of the depressive group than the mixed group. In each, however, excepting the *Split* category, the manics' possessive were lower than those of the depressive group. We speculate, therefore, that the issues of unity and separation, the combination of both in a single relationship, and the need for less conflict-ridden independence are salient for

both groups but that they are more so for persons prone to depression than those subject to mania. A theme in the unscored content of the responses seems also to suggest that the persons in the depressive group were more committed to effortful striving than those in the manic group. For example, within the *Suspension* category, a member of the manic group responded, "woman...fluffy quilt around her...floating;" and a depressive group member, "space ship, rising vertically." In the *Strive* category, similarly, a manic response, "tulip breaking from the covering of a flower," seems to show less directed effort than the depressive response, "polar bears, merged down here, are moving out of the polar ice cap."

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THE RELATION BETWEEN RORSCHACH SIGNS OF AGGRESSION AND BEHAVIORAL AGGRESSION IN EMOTIONALLY DISTURBED BOYS

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Summary: Ratings of aggressive behavior were related to Rorschach signs of aggression for sixty-three boys at a residential treatment school for children. The total list of 26 Rorschach signs was significantly correlated with the ratings, but much of this relationship was contributed by only a few individual signs. Indices of aggressive impulses, such as aggressive content, were not significant, while the more structural indices, considered as measures of impulse control, (presence of CF and absence of human movement responses), were significantly related to the behavior ratings. Presence or absence of human responses alone differentiated between low aggression and high aggression groups about as well as did a combination of indices.

The purpose of this study is to contribute some empirical findings in two main areas: the use of the Rorschach as a diagnostic instrument with children, and the relationship between fantasy aggression and overt behavior.

The Rorschach was developed with adult subjects, and much of the extensive theoretical and experimental literature on this instrument has been based on adult subjects. However, the widespread use of this test in the diagnostic study of children suggests that practicing child clinical psychologists consider it a valuable diagnostic tool with children as well.

Most of the research on the Rorschach with children is comprised of normative studies, such as Ames, Learned, Metraux & Walker (1957), in which the occurrence of various determinants has been compared for different ages. Much less has been done on the relationship of the Rorschach to different behaviors or clinical symptoms, as has been done with adults. Thus, one purpose of this study is to relate some Rorschach variables to a common clinical problem in emotionally disturbed children, the problem of aggressive behavior.

The second purpose involves the use of the Rorschach to study the relation between fantasy and behavioral aggression. While the Thematic Apperception Test (TAT) has been the most commonly used projective measure in

studies of fantasy and behavioral aggression, the Rorschach has also been applied to some variables found to be important in studies with the TAT.

Several studies have been based on the frequency of aggressive themes in Rorschach content. These content scales seem quite similar to the type of TAT research where the amount of aggressive impulses is determined by measuring the frequency of aggressive themes. Buss (1961), in his summary of Rorschach studies of aggression, describes a number of studies which have used this content type of approach. He concludes that these content measures were related to behavior fairly consistently in a variety of populations.

It is in the area of inhibition of aggressive impulses that the Rorschach can make a unique contribution. The TAT studies have demonstrated that both amount of aggressive impulses, and anxiety about aggression, can be influential in determining overt aggressive behavior (Mussen and Naylor, 1954; Kagan, 1956; Lesser, 1957; McNeil, 1962; MacCasland, 1962). However, a third variable is equally important. A person might be quite anxious about acting on his aggressive impulses, but might still act very aggressively because of an inability to inhibit or control his impulses. Thus, an inhibition versus impulsivity dimension would also contribute to the relationship between aggression in fantasy

and behavior.

The Rorschach has traditionally contained a measure of impulsivity in several of its formal scores. This is first mentioned by Rorschach (1942, p. 76) himself: "The more color in the test, the greater the emotional instability of the subject, the more kinaesthesias, the more stable the affectivity." Following Rorschach's original formulation, every main theoretical discussion of the Rorschach has included some mention of the relationship of undifferentiated color to impulsivity and of movement responses and differentiated color to control of impulses. While this relationship has been quite clear in theoretical discussion of the Rorschach, research has been more limited and ambiguous.

Singer, Wilensky & McCraven (1956) used both the Rorschach *M* and the related Barron Movement Threshold Inkblots in a factorial study of delaying capacity, fantasy and planning ability, and found that these measures were associated with ability to restrain impulsive responses. Instead of using *M* as a formal score, Sommer and Sommer (1958) looked at the content of *M* responses rather than the presence or amount of *M* itself. They also included color responses, and found the incidence of color was related to assaultiveness but not to verbal aggression.

The majority of studies which have related a formal Rorschach variable to aggression have involved the white space responses, thus concentrating on the oppositional aspects of aggression. However, it is not surprising that the more subtle and controlled oppositional tendencies which are implied in a space response have not been found to be consistently related to more overt and impulsive aggressive behavior.

The literature on the use of the Rorschach with children has made more use of the relationship between *M* responses and impulsivity. The ability to give a human movement response is viewed as an important developmental accomplishment for a

child. The emphasis in this area has been on normative studies, with the interest in the age at which an average child first develops this internal control over his impulsivity. Generally, with children of average or above intelligence, the Rorschach record of a six or seven year old should contain one *M* response. (cf. Ames *et al.*, or Ledwith, 1959). Halpern (1960), in her article in a book edited by Rabin and Harworth suggests that the absence of human movement responses, with its implications of failure in impulse control and verbal and symbolic thinking, may be a feature in the Rorschach records of pathologically aggressive children.

THE PRESENT STUDY¹

The present study is addressed to the general areas discussed above. More specifically, hypothesized Rorschach indices of aggressive behavior will be abstracted from Rorschach protocols of emotionally disturbed children and related to independent measures of the child's aggressive behavior. Specific hypotheses are:

Rorschach signs of aggression taken from the literature will be positively related to overt aggressive behavior.

1. This relationship will be present for signs considered as indices of intensity of aggressive impulses...
2. This relationship will be present for signs considered indices of impulse control.

METHOD

Subjects

The subjects for this study were sixty-three boys at a residential treatment facility for children with emotional disturbances. Their ages at the time of

¹These data were gathered while the writer was on an internship at Bradley Hospital, Providence, Rhode Island. The advice and assistance from Dr. Anthony Davids, Dr. Peter Hainsworth, Dr. Morton Silverman, and Mr. Paul Cardin, of that institution is acknowledged.

testing ranged from seven years to twelve years, five months, with a mean age of nine years eight months. Diagnostic categories represented were as follows:

Passive Aggressive Personality	47
Emotionally Unstable Personality	5
Inadequate Personality	2
Schizoid Personality	4
Schizophrenic Reaction	3
Neurotic Reaction	2
Mean Full Scale WISC IQ of the group was 92.6, mean Verbal IQ 91.3, and mean Performance IQ 95.3.	

Rorschach Signs of Aggression

A list of Rorschach signs supposedly related to aggressive behavior was obtained from the following standard sources in the Rorschach literature:

(K) Klopfer, Ainsworth, Klopfer & Holt - *Developments in the Rorschach Technique*, (1954).

(PS) Phillips & Smith - *Rorschach Interpretation*, (1953).

(R) Rickers-Ovsiankina - *Rorschach Psychology*, (1960).

(S) Schaefer - *Clinical Application of Psychological Tests*, (1948).

This list was intended to include any individual Rorschach signs which have been hypothetically linked with aggressive behavior. The only criterion for inclusion was that a sign be suggested in this regard in one or more of the above books. Therefore, whether or not any experimental or clinical evidence was reported to substantiate the use of a particular sign was disregarded. The Rorschach protocol for each subject was scored for each of the signs on this list.

Sign

Source

High percent of FM and A	K, R
Absent or low M	K, PS, R
C	PS, S, R
CF	K, PS, S, R
C'	R
Blood	PS, R
Fire	PS
Spilling	R
Stain, Splotch, Splatter	PS
Volcanoes, Bombs, Explosions	PS, R

Visceral Anatomy	PS
Any Anatomy	--
Teeth	PS
Aggressive Actions	PS, R
Aggressive Fabulizations	PS, R
Bug	PS
Crab	PS
Frightening Creatures	R
Objects of Aggression	R
Mutilated Animals and People	PS, R
Dead Animals and People	R
Broken Objects	PS, R
War and Hunting Tools	PS
Defensive Objects	R
Aggressive Animals	PS

The M responses were scored strictly and included only actual humans. Movement responses involving mythical creatures, cartoon characters, and animals in human actions were not counted. Frightening creatures were the culturally traditional frightening and unreal concepts such as witches, ghosts, monsters, and giants.

For each of the subjects, the presence or absence of each of the 25 individual signs in the protocol was recorded, and also the total number of signs, which could range from zero to 25. The number of times each sign appeared in the protocol was also recorded.

Overt Aggression Ratings

A staff social group worker rated each of the boys on the degree of aggressive behavior displayed while in residence. As a member of the child care department, this social worker supervised the unit activities and had daily contact with all the children. Part of his job was to deal with a child who became too aggressive and disruptive for a unit leader to handle in the group. Consequently, he was well acquainted with the frequency and intensity of each child's aggressive behavior.

His ratings were recorded on a continuum somewhere from extremely passive, through somewhat aggressive, quite aggressive, to extremely aggressive. Instructions given to him were:

Rate each of the following boys as to his overall tendency to be aggressive with a-

dults and peers. You may mark anywhere along the line between extremely passive and extremely aggressive. Do not hesitate to use extreme ratings if you feel they are justified. Compare each boy against the others we have had here in the hospital in the last five or six years.

After the boys were rated according to the descriptive terms, the locus of the ratings was measured with a ruler and these values were converted to a numerical scale from 1 to 9. Those boys whose numerical score was from 1 to 4 formed the low aggression group ($N=25$). Those whose scores were from 5 to 9 comprised the high aggression group ($N=38$). For the low aggression group, the mean rating was 2.9; for the high aggression group, the mean rating was 6.8.

RESULTS

Intelligence

As can be seen from Table 1, the two groups of children were very close in

intelligence; none of the differences approached significance. The lack of IQ scores in the upper ranges is striking. Out of the 63 cases, only 1 is above the average range. Thus, this patient population is largely made up of children from the lower half of the population in functioning scorable intelligence.

It has been postulated by some writers that patients diagnosed as character disorders who have a history of anti-social acting-out behavior are often higher on performance measures than in verbal ability. In the high aggressive group, 35 of the 38 had a diagnosis of passive-aggressive personality, and all had been unable to live in the community because of their unacceptable behavior. According to the above hypothesis, they could be considered a group which should have a higher performance IQ. The 4.3 difference between verbal and performance IQ is in the right direction, but does not approach significance. Even

Table 1
Means, Variance, and Range of IQ Values
on the Wechsler Intelligence Scale
for Children

	Total Group ($N=63$)	Low Aggression ($N=25$)	High Aggression ($N=38$)
Full Scale IQ	M= 92.6 v.=128.78	M= 90.6 v.=141.12	M= 93.9 v.=146.96
Verbal IQ	M= 91.3 v.=125.29	M= 89.8 v.=168.0	M= 92.3 v.=144.95
Performance IQ	M= 95.3 v.=152.36	M= 93.2 v.=179.38	M= 96.6 v.=163.85

IQ Range

	Full Scale	Verbal	Performance
130+	0	0	0
120-129	1	1	1
110-119	0	2	4
100-109	16	13	19
90-99	23	23	21
80-89	12	13	9
70-79	10	9	7
60-69	1	1	2

more important, these children do not differ from the low aggression group on these VS-PS differences.

Association between Behavior Ratings and Diagnosis.

Subjects were divided into two groups by diagnosis. The larger group ($N = 47$) included all those with a diagnosis of passive-aggressive personality. The remaining 16 cases were combined to form the "other" group. Chi-square value for the comparison of diagnostic groups with behavior ratings groups was highly significant ($X^2=15.48$, $p=.001$).

This preponderance of passive aggressive diagnosis and its association with the behavior rating reflects the nature of the patient population. A main factor causing referral for residential treatment is the presence of aggressive and anti-social symptoms which continually bring the child into conflict with parents, teachers, even the police. Therefore, with these children the diagnosis passive aggressive personality may imply that it is passive aggressive character, *aggressive* type.

Association of Rorschach Signs with Behavior Ratings

The high aggression and low aggression behavior groups differed slightly

in mean number of responses, but this difference did not approach significance (*LA* group, $M = 20$; *HA* group, $M = 17.7$; $t = 1.21$). The small size of the difference in number of responses was reassuring that relative productivity of the two behavior groups would not be a serious variable affecting differences in the two groups on particular Rorschach signs.

The association between behavior ratings and the total list of Rorschach signs is shown in Table 2. Both chi-square analysis and product-moment correlation indicate a significant degree of association. When each sign is considered individually, it is apparent that a few signs are contributing a large part of this association, while the others appear unrelated to the behavior ratings. Tables 3, 4, and 5 indicate the results when the signs are considered individually.

Few of the signs which involved the content of the response were significant. The responses dealing with directly aggressive content, such as the Aggressive Action and Aggressive Animal categories showed little relationship to behavioral aggression. Three of the more indirect content categories, Teeth, Dead Animals and/or People, and Frightening Creatures, were related to the behavior ratings.

Table 2

Association Between Behavior Ratings and
Total List of Rorschach Signs

Mean number of Rorschach categories	
High aggressive group	$M=5.79$
Low aggressive group	$M=4.56$
Product-moment correlation between behavior ratings and number of Rorschach categories.	$r=.30$ $p=.01$
Chi-square analysis of high and low behavior rating groups x high and low Rorschach groups (6-9 categories, 1-5 categories).	$X^2=5.10$ $p=.025$

Table 3

Chi-Square Tests of Association Between
Behavior Ratings and Individual Rorschach Signs

Sign	Chi-square Value	Probability
Animal Percent	.96	n.s.
Less than 2 M	7.66	.005
Absence of M	3.28	.05
2 or more CF	2.7	.05
Anatomy	-1.39	n.s.
Aggressive Actions	.47	n.s.
Frightening Creatures	5.85	.01
Mutilated Animals/People	-.22	n.s.
Crabs	-1.30	n.s.
Aggressive Animals	-.35	n.s.

Table 4

Percentages and Differences Between High and Low
Aggression Groups for Individual
Rorschach Signs of Low Frequency

Sign	Aggression Group				t	p
	High		Low			
	Number	%	Number	%		
Fabulizations	2	5%	6	24%	1.7	.10
Fire	4	11%	6	24%	1.06	n.s.
Blood	5	13%	1	4%	.947	n.s.
Stain, Splotch	1	3%	1	4%		
Volcanoes	5	13%	2	8%	.48	n.s.
Bugs	4	11%	4	16%		
Spilling	1	3%	1	4%		
Teeth	6	16%	0	—	1.70	.05
Dead Animals						
and/or People	5	13%	0	—	1.50	.07
Broken Objects	3	8%	1	4%		
War and Hunting						
Tools	8	21%	5	20%		
Objects of						
Aggression	1	3%	1	4%		
C'	1	3%	0	—		
Visceral Anatomy	4	11%	5	20%		

These types of response imply a view of the world as a rather dangerous and frightening place. The relationship of these responses to aggressive behavior is in line with a common clinical hypothesis about frightening percepts. Monsters, giants, etc., can be considered as

reflections of the child's projected hostility. He expects as much hostility from the world as he himself feels, and thus is often quite frightened of aggression from others despite his own aggressive behavior.

The second hypothesis that a rela-

Table 5

Comparison of Mean Behavior Ratings of Presence
and Absence Groups for Five Individual
Rorschach Signs

Sign	Mean behavior rating, presence of sign		Mean behavior rating, absence of sign		D _M	t	p
	N	Mean	N	Mean			
M less than 2	45	5.80	18	3.90	1.90	2.923	.005
CF, 2 or more	23	6.30	40	4.70	1.60	2.622	.01
Frightening Creatures	32	5.78	31	4.70	1.10	1.831	.05
Teeth	6	7.33	57	5.25	2.10	2.076	.025
Dead Animals and/or People	5	6.80	58	5.25	1.55	1.420	.10

tionship between behavior ratings and Rorschach signs considered indices of impulse control would be present, is clearly supported by the results. The more human movement responses a child showed in his Rorschach protocol, the less apt he was to be in the high aggressive behavior group. (Table 6). The occurrence of M was not significantly different for groups divided according to IQ, chronological age, or mental age. Therefore, the low intellectual level of many of the subjects does not seem to be an influence on the number of M responses. Thus, intelligence does not seem to be confounding the relationship between low M production and aggressive behavior. Instead, the low M production in the

high aggressive children seems to reflect the emotional impoverishment in these acting-out children. While the average six or seven year old gives one human movement response, over half of these older children who are in the high aggressive group see no human responses at all. One traditional hypothesis concerning human responses is that they indicate an ability to deal with impulses on an internalized, fantasy level, and thus indicate some inhibition and delay of impulses rather than immediate acting-out. In this particular subject group, the pattern of incidence of human responses would seem to fit with this interpretation of M responses.

The higher incidence of undifferent-

Table 6

Association Between Behavior Ratings
and M Responses on the Rorschach

	Number of M present		
	0	1	2+
	21 8	11 5	6 12
High aggressive			
Low aggressive			

$$\chi^2 = 7.687$$

$$p = .02$$

Table 7

F Values for the Association of M Responses
with All Other Rorschach Signs Combined

M	df=2	F=4.252	p.05=3.15
Other signs	df=2	F=2.156	p.10=2.39
M x other signs	df=4	F=2.96	p.05=2.53

iated color responses in the high aggressive group also supports the hypothesis that the Rorschach responses related to inhibition versus impulsivity might be most important. The *C/CF* category involved all undifferentiated color responses, irregardless of the content. Two types of color responses, Fire and Blood, were also analyzed separately, and neither was significantly related to the behavior ratings. (See Table 4). Both Fire and Blood seem to imply a more aggressive type of content than might be found in the total group of color responses, which also included responses such as rainbows or ice cream. However, the color responses in general were significant, while the specific color responses which had a more aggressive content were not significant. Thus the content does not seem to be as important as the impulsivity implied in the general use of undifferentiated color.

The ratio of human responses to color responses was also significant ($X^2=7.66$, $p=.01$). The ratio of "M greater than CF" was more frequent in the low aggression group, while the reverse was more common in the high aggression group.

Table 7 shows the relationship of M responses to all the other signs combined. While this combined group of signs did not reach significance, the interaction effect of M with the others is significant. Thus the interpretation of the other Rorschach indices might vary according to the presence or absence of M responses in the record.

The next step was to determine a list of the most promising indices for use in future research. The five signs which were significant beyond the .10 level (less than 2M, 2 or more CF, Frightening Creatures, Dead Animals and/or People, and Teeth), formed the basis for this list. Two low frequency signs were added, Blood and the category of Volcanoes, Bombs and Explosions. With the original subjects, the product-moment correlation between this list of seven signs, and the behavior ratings, was .54 ($p=.001$).

When the boys are classified on the basis of those with two or more of these seven Rorschach signs of aggression, 82% of the high aggressive group on behavior ratings would be correctly placed, and only 18% of the aggressive group would be falsely labeled non-aggressive. This scheme is not so successful in indicating members of the low aggressive group. Only 64% would be placed correctly, while 36% would be false positives.

In this study of Rorschach indices, the more direct measures of aggression, such as hostile content, were not significantly related to overt aggression. Instead, the significant signs were the more indirect measures and the two signs theoretically related to ego control, M and CF. The low frequency of M responses in the Rorschach records of the more aggressive boys supports the common clinical hypothesis about the impoverished Rorschach records of acting-out children.

Since the usual emotionally disturb-

ed child at this residential center has had extremely conflictful relationships with his parents or other adults, most are postulated to have a strong degree of aggressive impulses, whether or not expressed in behavior. Thus, it is possible that in this particular population, the control factor might be relatively more important than in a group of more normal children with wide ranges in both impulse level and impulse control.

From a theoretical viewpoint, as well as for future research, the relationship of *M*, as a possible measure of impulse control, to behavioral aggression, is the most interesting aspect of this study. Future research might involve other measures of impulsivity, such as in an experimental situation or some measure of this variable in regard to the TAT. Another possibility is the use of an instrument such as the Barron Movement Threshold Blots, or the Holtzman series, in addition to Rorschach *M* scores. In this study with the Rorschach, the range of *M* scores was quite narrow, so an instrument which would tend to elicit more movement responses might be better suited to a thorough evaluation of this kind of relationship.

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APACHE "LEARNERS" AND "NONLEARNERS"¹

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Summary: While the Mescalero and Chiricahua Apaches of the Mescalero Indian Reservation aboriginally probably had very similar if not identical patterns of cognition and perception, present day aged members of those tribes have strikingly different patterns, demonstrable by clinical behavior and Rorschach responses. While in kindergarten, about half of the grandchildren and greatgrandchildren of those aged Mescaleros and Chiricahuas are unable to adjust themselves to the expectations of school teachers and are retained for a second year of kindergarten. Those children, here designated as nonlearners, are found to respond to Rorschach stimuli as do the aged Mescaleros with a high degree of statistical reliability.

INTRODUCTION

The vast majority of children who live on the Mescalero Indian Reservation attend a state-supported grammar school in the district known as Agency. They usually begin kindergarten at the age of five years. From 1955 through 1959, the year in which the principal data for this contribution were amassed, the kindergarten teachers considered about half of their students to have adjusted themselves adequately to the usual aims of grammar school education to warrant their promotion to the first grade and called those children "learners." The other half were thought to require another year of instruction and were placed in a second year of kindergarten, named pre-first; they were called "non-learners."

The research team involved in the project which provided the data for this study comprised anthropologists and a psychoanalyst, and psychologists served as consultants. The anthropologists studied social structure and socialization processes and the psychoanalyst sought to delineate the personality organization of the resident Apaches. While his principal research technique constituted conducting psychotherapeutic interviews, it had been found that interpretation of Rorschach protocols provided clinically verifiable data.

Since it was impractical to study the differences in the personality structures of the learners and nonlearners via such interviews, it was decided to use Rorschach tests as a potentially valuable adjunct.

The predominant number of the subjects observed, Apaches of the Reservation, stem from the Mescalero and Chiricahua Tribes. Aboriginally, the social structure and socialization patterns of those groups were almost identical (Basehart 1959, 1960; Opler 1933, 1941; Thomas 1959a, 1959b). It has been assumed that their personality organizations were similar (L.B. Boyer 1964). The processes of acculturation to which the two tribes were subjected differed radically. The Mescaleros were confined to an area in the heartland of their old-time hunting, gathering and raiding activities and supervised by the Bureau of Indian Affairs, while the Chiricahuas were held as prisoners of war for some 27 years before they joined the Mescaleros on the Reservation in 1913. The personality configurations of the Chiricahuas of today who spent at least five years of their childhoods in the prisoner of war camps differ from those of the Mescaleros of equal ages

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in manners which have been observed clinically and through the use of Rorschach tests (Boyer & Boyer 1966a, 1966b, 1967; Boyer, Klopfer, Boyer, Brawer & Kawai 1965a, 1965b).

Ten Rorschach criteria differentiated between the old-age Mescaleros and Chiricahuas. The Chiricahuas were

higher than the Mescaleros in their total responses; they used more large details, gave more animal, form and form-dominated color responses and they reacted more frequently to the bright colors of cards II and III. The Mescaleros gave more color-dominated form and shading responses than did the

Table 1
Statistical Comparisons between the Old-Age Mescaleros and Chiricahuas

1.	Subject Numbers Age (Means)		Mescaleros		Chiricahuas	
			26	66	22	61
2.	Rorschach items differentiating Mescaleros and Chiricahuas					
			Mesc.	Chir.	Value of X^2	Level of Significance
i	R	0.16 >16	15 11	6 16	4.81	0.05
ii	D%	60+ 0.59	21 5	13 9	2.91	0.10
iii	A%	56 57+	21 5	11 11	5.07	0.05
iv	F%	0.20 21+	15 11	4 18	7.78	0.01
v	FC	0.1 2+	18 8	8 14	5.74	0.02
vi	FC	<CF+C >CF+C	19 7	9 13	4.53	0.05
vii	Color responses in cards II, III vs cards VIII, IX, X $n = (\text{Numbers of responses in VIII, IX, X}) - (\text{Numbers in II, III})$ $n=1$ $n>1$				3.89	0.05
viii	Fc	0.2 >2	10 16	15 7	4.21	0.05
ix	M responses with weight ($M+=1$, M with $Hd=0$; M unusual = -1 , $M- = -2$) M 0.2 2				3.07	0.05
x	Deer response in the upper orange part of card IX Deer response				3.06	0.10

Note.-Modified from Boyer, Klopfer, Boyer, Brawer & Kawai (1965).

Chiricahuas; they reacted more frequently to the pastel colors of cards VIII, IX and X, gave more usual human movement responses and saw a deer more often in the upper orange part of card IX (Table 1).

The effects of acculturation appear to have been less disruptive to the personality organizations of the aged Mescaleros and Chiricahuas than to the middle-aged and young-age individuals (Boyer, Boyer, Brawer, Kawai & Klopfer 1964). Although the old Chiricahuas gave evidence of having adjusted somewhat better to living like whites, their inner lives were less rich and they appeared to have less personal security than did the aged Mescaleros (Boyer & Boyer 1966a).

THE DATA

Rorschach tests were administered by the psychoanalytic member of the research team (L.B. Boyer) to all of the children of the pre-first and first grades and to a few other children who had demonstrated themselves to be either clearly learners or nonlearners. In order to avoid the influence of age differences, subjects older than ten years were excluded from statistical comparison. All of the information used for these analyses was obtained from numerical analyses of the original protocols. The data were gathered from a quantitative approach by Mr. Kawai rather than through individual interpretations, as in the Klopfer & Boyer (1961) review of a shaman. A comparison of the quantitative scores, as determined by the Klopfer method (Klopfer, Ainsworth, Klopfer & Holt 1954, pp. 249-316) was made for the learners and nonlearners for the purpose of discovering any discriminating differences between the groups.

The statistical differences are not striking. There is no category which shows a difference at the 1% level of significance, using the X^2 test. The averages of F_c , Sum C , CF and C of the learners is higher than those of the nonlearners. In $A\%$, the nonlearners have

a higher average at a significance level of 5% (Table 2).

Such differences do not have a direct connection with intellectual aspects. The results can be interpreted in Rorschach terms to mean that the learners have more capacity to accept their affectional needs, as indicated by the greater number of F_c responses. They are more outgoing and spontaneous in the expression of their emotions. However, there is no similar difference in FC responses; thus it cannot be said that the learners have more emotional control than the nonlearners. The former have an out-going attitude, stronger desires for productivity, whether creative or otherwise, and wider ranges of interest. It would appear that the main basis for distinction between the groups depends upon an attitude toward the outside world and not on intellectual capacities: the learners are more productive and have a wider interest in external reality.

As was mentioned before, the personality differences between the old-age Mescaleros and Chiricahuas could be attributed to variations in their patterns of acculturation. Matrifocality characterizes the Apaches of the Reservation (R.M. Boyer 1964). An intensive study of modern socialization practices has revealed them to be the same in a series of representative families (R.M. Boyer 1962). This finding held regardless of the degree of Mescalero or Chiricahua parentage of the mother, if she had spent her childhood on the Reservation. Nevertheless, we tested the possibility that there was some relationship between the degree of ethnic Mescalero heredity and the tendency to be a nonlearner. The findings are not statistically significant (See Table 3).

Qualitative interpretation of the individual records was done by Dr. Klopfer, who paid particular attention to the intellectual aspects and presence of Mescalero patterns. The intelligence of the subjects was estimated by evaluation of the form-level rating, the quantity and quality of M , W and O responses, the

Table 2

Statistical Comparison between the Learners and Nonlearners

1.	Subjects 6-10 years of age. Subject	Learners 30	Nonlearners 24		
2.	Rorschach measures discriminating between the two groups				
		Learn.	Nonlearn.	Value of X^2	Level of Significance
i	R 0.24 >24	12 16	15 7	3.62	0.10
ii	Fc 0 ≥0.5	17 11	20 2	4.38	0.05
iii	Sum C 0.1 >1	8 20	13 9	4.71	0.05
iv	CF 0.1 >1	11 17	15 7	4.12	0.05
v	C 0 ≥0.5	11 17	15 7	4.12	0.05
vi	A% 0.55 >55	20 8	9 13	4.71	0.05

variety of content and succession (Klopfer, Ainsworth, Klopfer & Holt 1954, pp. 352-360). The difference between the intellectual levels as judged in this manner of the two groups of children is not statistically significant (See Table 4). It will be noted that the totals for the sample in Part 1 are 30 learners and 24 nonlearners. In Table 2, there are two less in each category. The reason for this discrepancy is not now known.

The category "Immature" includes children whose responses were like those of four-year-olds; their intelligence could not be estimated with reasonable certainty. In general it was felt that shyness and/or fear kept these children from responding in a manner which would correspond with their potential.

In 1964, the Otis Quick Scoring Form *Em* was administered to children of these groups and the difference in their

Table 3

Ethnic Mescalero Heredity of Learners and Nonlearners

Number of Great-grandparents of Mescalero Origin	Learner	Nonlearner	Value of X^2	df	Probability
12-16	4	6	1.94	2	N. S.
6-11	15	8			
0-5	11	10			

Table 4
Intelligence of Learners and Nonlearners

1. Estimate from Rorschach evaluation.

	Low	Average	High	Immature
Learners	1	12	16	1
Nonlearners	2	5	12	5

$\chi^2=5.83$ $df=3$ $p < 0.20$ (N. S.)

2. Results of Otis Quick Scoring Form Em, administered in 1964.^a
(Five years after the Rorschach administrations.)

	Learners	Nonlearners
Number	18	17
Mean Beta	90.78	85.10
Standard Deviation	9.16	6.42

$$\frac{D}{\sigma dp} = 0.505$$

Level of Significance = N. S.

^aCourtesy Mr. Alfred J. Garcia, Counselor, Bent-Mescalero School

Beta scores was not statistically significant (See Table 4).

As stated previously, the typical old-age Mescalero way of responding to the Rorschach stimuli is to emphasize the inner world and to refrain from exposing themselves to the outer world. However, in the children this attitude has two types of manifestation. In the first, here called the "Mescalero Way," the individual stresses only his inner world. In the second, the "Converted Mescalero Way," the basic pattern of response is the Mescalero Way, but the subject had the additional capacity to cope with external demands, often in a matter-of-fact manner, reminiscent of the old-age Chiricahuas.

The children who were judged to respond in the Converted Mescalero Way were all learners. Except for one child who was labelled "Immature," they were all deemed to have high intelligence. They used color both in the manner of the old-age Mescaleros and of the old-age Chiricahuas. When the old-

age Mescaleros used small details, they did so in an arbitrary manner and did not change their responses. The children who reacted with the Converted Mescalero Way used many small details in a realistic way which showed obvious connection with their other responses to the cards, and they gave alternate answers, as did the old-age Chiricahuas.

The protocols were separated into four groups, depending upon the extent to which the children showed a tendency to respond as had the old-age Mescaleros: (1) those in which no Mescalero tendency was noted, (2) those in which there was a mild Mescalero tendency, (3) those reacting in the Mescalero Way and (4) those showing the Converted Mescalero Way. Of the 30 learners, 15 revealed no Mescalero tendency and 11 responded in the Converted Mescalero Way; 14 of the 24 nonlearners responded in the Mescalero Way and 4 had a mild Mescalero tendency. Thus, only 4 of 30 learners

responded in either the Mescalero Way or with a mild Mescalero tendency, while 18 of the 24 nonlearners reacted in the Mescalero Way or with a mild Mescalero tendency. This difference is highly reliable statistically, the level of significance being less than 0.001 (See Table 5). In 1967, records of 24 learners and 22 nonlearners were examined to determine their levels of performance in grammar school. Those records combined with teachers' estimates revealed the nonlearners to have demonstrated a lower level of performance to a degree which had a statistical reliability of less than 0.01 (See Table 6).²

DISCUSSION AND CONCLUSION

There is a striking tendency for the nonlearners to respond to the Rorschach stimuli in a manner which resembles that of the old-age Mescaleros (See Table 5). Two alternate hypotheses suggest themselves as possible explanations: (1) that there is a determinative

hereditary factor, or (2) that causative differences exist in the socialization patterns of the learners and nonlearners.

The study of the old-age Apaches suggested strongly that a demonstrable change occurred in the perceptual and cognitive patterns of the Chiricahuas in a single generation. Such a finding cannot be explained on a genetic basis. Additionally, the immediate forbears of the learners and nonlearners did not show a statistically reliable difference in the Mescalero parentage of the two groups. By exclusion, therefore, we must turn to the second hypothesis as explanatory.

The socialization study revealed that there were no obvious consistent variations in child-rearing patterns and formal and informal educative techniques used by Reservation families. Thus whatever differences are to be found must be of a subtle nature. In the old-age study, the personality change of the Chiricahuas seemed to be explainable by the hypothesis that the children who were reared in prison camps identified with their captors and overseers. The old-age Mescaleros retained the per-

² Courtesy of Mr. Billie B. Adams, Principal, Bent-Mescalero School.

Table 5
Summary of Mescalero Tendencies of Learners and Nonlearners

	Mescalero Way	Mescalero Way (mild)	Not Mescalero Way	Converted Mescalero Way
Learners	1	3	15	11
Nonlearners	14	4	6	0
	Mescalero Way		Not Mescalero Way	
	+		+	
	Mescalero Way (mild)		Converted Mescalero Way	
Learners	4		26	
Nonlearners	18		6	

$$\frac{D}{\sigma_{dp}} = 5.95 \quad \text{Level of Significance} < P = 0.001$$

Table 6^aPerformance Levels of Learners and Nonlearners in Grammar School^b

Subjects	Performance		
	Superior	Average	Poor
24 Learners	9	10	5
22 Nonlearners	0	10	12
$\chi^2=9.27$ $df=2$ $p < 0.01$			

^aCourtesy of Mr. Billie B. Adams, Principal, Bent-Mescalero School.^bBased on examination in 1967 of school records and teachers' estimates of performance.

ceptual and cognitive orientation of their own parents. Extrapolating from this finding, it is reasonable to assume that during the socialization of the learners and nonlearners, the differences in their orientations can be explained likewise on the basis of the young children's having identified with the perceptual and cognitive techniques of significant persons in their home environments.

Two-thirds of the nonlearners and half of the learners responded in the Mescalero Way, although 11 of the 15 learners who reacted in this manner gave additional responses to Rorschach stimuli which warranted their inclusion in the Converted Mescalero Way. This finding may be explained in either of two ways: (1) that the children identified from the beginning with the perceptual and cognitive techniques of individuals whose socialization had resulted in their taking over the patterns both of individuals with and without the Mescalero Way orientation, or (2) that their first-formed reaction pattern was the Mescalero Way and subsequent exposure to the significant persons resulted in a modification of *Weltanschauung*, potentiating a shift in attitude which permitted both inner-and outer-directed capacities. An answer to this important question must await a detailed analysis of residence and housing patterns.

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A ONE-YEAR CONCURRENT VALIDITY STUDY OF THE RORSCHACH PROGNOSTIC RATING SCALE

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Summary: A study was conducted of one year's referrals to a Juvenile Court Clinic, comparing the ratings of psychiatrists and social workers regarding a child's prognosis for psychotherapy with ratings from the Rorschach Prognostic Rating Scale (RPRS). The RPRS proved to be highly reliable and to correlate significantly with psychiatric ratings. Intelligence did not appear to be a confounding factor, and no difference was suggested in RPRS prognosis for Caucasian or Negro subjects.

The Rorschach Prognostic Rating Scale (RPRS) (Klopfer, Ainsworth, Klopfer, & Holt, 1954, Pp. 688-697) has been shown to be a remarkably effective predictive adaptation of the Rorschach. It has reflected positive findings in predictive validity studies on both adult (Cartwright, 1958; Endicott & Endicott, 1964; Kirkner, Wisham, & Giedt, 1953; Mindess, 1953) and child patients in psychotherapy outcome investigations of varying theoretical persuasions (Mindess, 1953). Therefore, it would appear that an avowed aim of the RPRS authors, to predict potential for psychotherapy (Klopfer, *et al.*, 1954, p. 689), has been largely realized. In a concurrent validity study Adams, Cooper, & Carrera (1963) have also shown that the RPRS is negatively correlated with the various disturbance indicators of the MMPI. The present study deals with a one-year assessment of the concurrent validity of the RPRS on a sample of all child patients referred to a Juvenile Court Clinic in a large metropolitan area (Saint Louis, Missouri).

METHOD

Subjects

The subjects were children routinely accepted as referrals to the Juvenile Court Clinic over a single calen-

dar year. The requirement that a child proffer at least 10 responses to the Rorschach test resulted in the exclusion of four subjects from the sample. The research sample consisted of 27 Caucasian children (19 males, 8 females) and 15 Negro children (14 males, 1 female), for a total of 42 subjects ranging in age from seven through 16 years, with a mean age of 12. Social class level tended toward the lower strata of the economic hierarchy for all subjects. An assessment of the previous year's case load indicated that this was not an atypical sample. It also suggested that roughly half of these subjects would be referred for psychotherapy by the combined evaluations of the psychiatrist, social worker, and psychologist. This 50/50 breakdown was in fact approximated in the present sample. Thus, selection of subjects from this referral source minimized bias for or against psychotherapy.

Ratings of Potential for Psychotherapy

As in most child guidance clinics, the incoming child was placed on intake status. His parents were immediately interviewed by a social worker, and within a reasonable time a psy-

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chiatrist interviewed both him and his parents. The psychologist then administered a psychological test battery, including the Rorschach and an intelligence test. Inasmuch as the study was conducted during the daily routine of a clinic, more than one person within a professional discipline was involved. Six psychologists, two psychiatrists, and two social workers cooperated in the collection of data.²

Scoring of the RPRS was done exactly as described by Klopfer et al. (1954, p. 695), the only modification being that the scale scores of minus-12 to plus-17 were transformed into a range of from "one to 30" points for computational purposes. This transformation was made in the "negative" direction so that as the RPRS value increased, prognosis was poorer. Thus, a score of "one to five" points suggested that: "The person is almost able to help himself. A very promising case that just needs a little help" (Klopfer, et al., 1954, p. 695). A score of "25 to 30" points suggested that the patient was "A hopeless case" (Klopfer, et al., 1954, p. 695). In order to check the reliability of the RPRS, two psychologists independently scored all 42 Rorschach protocols.

A rating scale was then devised for the social workers and psychiatrists, based upon the exact phrasing of prognosis reported by the RPRS authors. That is, six dimensions of prognosis, framed between the "almost able to help self" and "hopeless case" phrasing referred to above, were explicated on a scoring sheet. Numbers ran along these dimensions, exactly paralleling the numerical distribution of the RPRS. For example, numbers 12 through 16 were for those prognoses characterized as "better than 50/50 chance; any treatment will be of some

help" (Klopfer, et al., 1954, p. 695). This meant that, whereas the psychologists would be assigning Rorschach test scale values of "one to 30" to each subject based solely on the objective evaluation of the Rorschach, a social worker and a psychiatrist would be doing exactly the same thing, using the RPRS anchor points as global scale discriminant to aid their judgments.

Instructions were carefully worked out for the psychiatrists and social workers so that after a reasonable briefing the procedure ran very smoothly. It is important to note that the social workers made their ratings following their usual number of intake interviews with the parents. They never actually saw the child, but relied entirely upon their impressions of the case history. The psychiatrists had the benefit of this case history (*but* not the projectives) in seeing both parents and the child preliminary to the diagnostic conference. Their ratings may thus be viewed as based upon more information, and were made after the psychiatrist had satisfied himself on the child's potentials for psychotherapy. The psychologists lacked information from the case history and in the great majority of cases had not even seen the child in person.

RESULTS

Pearsonian correlations were run between all ratings and the IQ scores of the 42 subjects, *broken down by race*. Considering first of all the reliability measures on the RPRS, it was found that the two psychologists correlated .833 (total sample), .793 (Caucasian), and .912 (Negro), all values much beyond .01 level of significance. The agreement ratings between the psychiatrists and the social workers were as follows: .527 (total sample, $P < .01$), .627 (Caucasian, $P < .01$), and -.312 (Negro, NS). This indicated rather clearly that disagreement between the psychiatrists and social workers was largely confined to the Negro referrals.

²The authors extend their appreciation to the following colleagues for their cooperation during various phases of this research: Herbert Cohen, Thomas Fitzgerald, Lois Franklin, William Lovata, Jack Rains, Robert Reynolds, Howard Rome and Daniel Winderman.

The next consideration would seem to be in the influence of IQ on RPRS and the other ratings of prognosis. A negative correlation between IQ and RPRS rating indicates that a low IQ is related to a poor prognosis for psychotherapy. For the combined sample, the correlation between the RPRS and IQ for both psychologists was essentially zero. However, social worker ratings and IQ for the total sample was $-.574$ ($P < .01$); this value for the psychiatrists was $-.497$ ($P < .01$). Significant correlations were found between RPRS values and IQ in the Caucasian subgroup. For Psychologist I this value was $-.401$ ($P < .05$), and for Psychologist II it was $-.428$ ($P < .05$). Social workers correlated $-.631$ ($P < .01$), with subjects' IQ, and the psychiatrists closely approximated this value with $-.646$ ($P < .01$). Although none of the correlations between IQ and Negro prognosis reached significance, it is important to note that *only* the social workers' ratings correlated negatively ($-.414$, N.S.) with intelligence. In the Negro sample positive correlations between IQ and prognosis were the rule for psychologists ($.314$ and $.449$, NS) and psychiatrists ($.177$, N.S.). In sum, the findings on intelligence suggest that the RPRS was *less* influenced by intellectual factors than the other ratings of prognosis, and that the social workers seemed more uniformly influenced in their judgement by this variable than the other raters. When it was found to reach significance, IQ was seen as tied to a "good" prognosis.

Table 1 gives the means and standard deviations of the prognosis ratings, broken down by profession of the rater and the race of the subjects. The next statistic of relevance pertains to the extent of relationship between the scores in Table 1. Inasmuch as different correlational values were found between the RPRS ratings of the two psychologists and the other team members, they will be summarized individually.

Psychologist I correlated with the social workers as follows: $.102$ (total sample, N.S.), $.273$ (Caucasian, N.S.), and $-.136$ (Negro, N.S.). Psychologist I correlated as follows with the psychiatrists: $.285$ (total sample, N.S.), $.426$ (Caucasian, $P < .05$), and $.694$ (Negro, $P < .01$). Psychologist II correlated with the social workers as follows: $.089$ (total sample, N.S.), $.266$ (Caucasian, N.S.), and $-.222$ (Negro, N.S.). Psychologist II correlated as follows with the psychiatrists' ratings: $.321$ (total sample, $P < .05$), $.485$ (Caucasian, $P < .01$), and $.583$ (Negro, $P < .05$). Hence, it would appear quite definitely that the Rorschach indices were more compatible with psychiatric than with social work estimates of prognosis for psychotherapy.

The final statistic of importance seemed to be a *t*-test comparison of prognosis scores across race. Although the findings summarized in Table 1 suggest a trend in the direction of better prognoses (lower RPRS ratings) by psychologists than by the other two disciplines, only one significant *t*-test emerged. Psychiatrists assigned a some-

Table 1

Mean and Standard Deviations of Prognosis Ratings by Professional Identities

Professional Identity	Total Sample		Caucasian Subjects		Negro Subjects	
	Mean	S. D.	Mean	S. D.	Mean	S. D.
Psychologist I	16.05	3.88	16.78	3.98	14.73	3.32
Psychologist II	14.52	3.84	15.22	4.07	13.27	3.00
Social Workers	18.62	3.79	17.96	4.05	19.80	2.93
Psychiatrists	18.95	5.04	17.33	5.44	21.87	2.16

what poorer prognosis to Negroes (21.87) than they assigned to the Caucasians (17.33), ($P < .01$). However, the RPRS did not reflect any difference between the prognoses of Negroes and Caucasians for either Psychologist I or II.

DISCUSSION

It would appear that the global Rorschach assessment known as the RPRS has once again proven reliably sensitive to the factors referred to whenever one speaks of "prospects for therapy". This study would suggest that IQ factors play a minor role in this sensitivity and, so far as can now be said, less of a role than IQ plays in the assessments made by members of related professions as regards a therapy referral judgment. The fact that the RPRS agreed more with psychiatric than with social worker ratings is even more remarkable, because in this study the psychiatrists had the benefit of an interview with the client and therefore very likely had a somewhat more balanced view of the child patient's potential for psychotherapy. In a very real sense the social workers of this study were handicapped. It is doubtless for this reason that they were forced to rely more on the intelligence estimate of a child (not the IQ *per se*, but intelligence estimates from school performance as communicated by the parent, etc.). But through it all, reliable measures taken from Rorschach performance agreed substantially with the "best" judgments proffered by participating team members.

There are, of course, drawbacks in the research design. Our psychiatric and social work ratings were not greatly refined in terms of reliability. And the fact that more than one rater or test administrator in a professional discipline was involved is a significant weakness. However, such unreliability charges as might issue from this criticism would argue on the side of "no findings", so that one is then forced in some way to argue around the rather

high correlations reported, (.694 agreements approximate the levels one expects on objective instruments). More fundamentally and practically, however, the study as conceived and carried out was done in the day-to-day press of clinical work. It was not reasonable to expect more time from psychiatrists and social workers, checking on one another's case load for reliability purposes.

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THE CONTAGIOUS POISSON DISTRIBUTION OF RORSCHACH SCORES¹

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Summary: Rorschach scores show frequency distributions that are neither normal nor Poisson. Their generating equation may be a formula for a "contagious Poisson" distribution developed by Coleman for use in social psychology. Data from the Harvard Student Study and from a sample of residents and interns both show good fit to the Coleman formula for nearly all Rorschach variables. Scores associated with abnormal mental states do not show good fit, however. The mathematical model may represent contagion once a type of response has occurred, or individual differences in response proneness, or perhaps an emission process. The corresponding urn model is one in which when one black ball is drawn, two are replaced.

Rorschach scores persistently occur with frequencies that do not coincide with any of the psychometrician's favorite patterns. Least of all do they fall along the normal curve. This fact has been variously regarded as evidence of the invalidity of the test, as grounds for complaint, since none of the best known "transformations" will normalize the scores, or as a tricky problem to be solved ingeniously by treating "the scale of scores as if it were made of rubber" (Coleman, 1964, p. 407).

No one seems to have sought the formula for the curve that Rorschach scores persistently *do* follow. What one sees repeatedly is that any one Rorschach score, such as *CF*, *At* or *d*, will have a modal frequency of zero. The next most common frequency will then be 1, some tests will score 2, a few 3, perhaps one 4, and then one test will appear with each of several scattered high frequencies, such as 12, 14 and 20. The result is a kind of die-away curve that has a long tail to the right as its characteristic feature. (See Figure 1.) What, we might ask, is the meaning of such a pattern?

It is not usually a Poisson distribution -- although at first glance it appears to have the shape of a Poisson curve. (The concept underlying the Poisson formula -- that we are dealing with random, rare events -- could have made sense, however pessimistic the view of the Rorschach that it implied.) A little arith-

metic shows that Rorschach frequencies are not following Poisson distributions, however, and that, in fact, the goodness of fit between these observed curves and Poisson expectations is very, very poor. That these are normal curves is not even a tenable hypothesis, by inspection, alone. What kind of curves are they then?

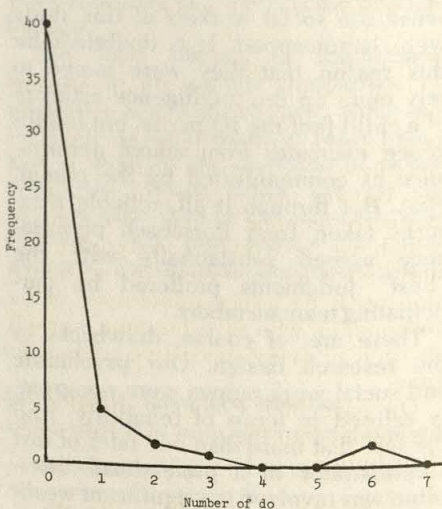


Fig. 1 Frequency Distribution of *do*

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COLEMAN'S DISTRIBUTION

It is in part the long tails of these Rorschach frequency curves that distinguish them, statistically and optically, from the steeper Poissons. Like the Poisson, the Rorschach curves approach zero as a limit but they go down more slowly and, one wants to say, reluctantly, with many positive entries recurring at unexpected points long after the curve seems to have declined to zero as its asymptote. That observation makes sense to Rorschachers; the whole point of the test is to identify those individuals who display a characteristic taste for, even obsession with, a particular response strategy and keep on using it long after everyone else has quit.

That is why one distribution recently described by Coleman looked so exciting. He dubs his curve "a contagious Poisson" (Coleman, 1964, p. 299). He derives it from a discussion of "social contagion" in small groups. But Coleman also recognized auto-contagion. He starts from the premise that "... when one person takes an action, then the probability of a second person's taking the action is changed," but goes on to the alternative: "Or when a person acts once, his probability of taking this action again is changed."

That sounds like what happens during a Rorschach. Coleman sees that he could be describing learning; he does not draw the possible analogy to test set. But his mathematical derivation is perfectly general to any situation in which we "take into account contagion" and "posit an increment in the transition rate in each succeeding state" of the respondent who is expressing himself in each of many successive trials over time.

On page 300, Coleman (1964) casts his model into the form of a frequency distribution:

$$p_i = \frac{a(a+b) \dots (a + [i-1]b)e^{-a} (1-e^{-b})^i}{i! b^i}$$

where it can be shown that the parameter b is estimated by:

$$b = \ln \frac{\text{variance}}{\text{mean}}$$

and that the parameter a is estimated by:

$$a = \frac{b(\text{mean}^2)}{\text{variance} - \text{mean}}$$

and that it is possible thereby to calculate the curve expected if any set of scores has frequencies that fit "this formidable-looking distribution function."

RESULTS

It turns out that Rorschach scores do.

The goodness of fit of Coleman's function to the distribution of Rorschach scores was tested in two samples, one taken from a recent college class and the other from the staff of interns and residents in a teaching hospital. Both these groups were selected for their emotional normality -- demonstrated at least to the extent of being able to function in a demanding work situation. On external evidence, it is known that a few members of the student sample were mentally ill, but it seems probable that none or almost none of the young doctors were. At any rate, these were not clinical populations.

A further consideration in choosing these samples was that they had been tested by different examiners. The students were given the Rorschach by the author, the interns and residents by Dr. Stanley King. All the Rorschachs were administered individually, under standard conditions.

Table 1 shows the results of fitting Coleman's curve to the Rorschach scores of 49 students. For most scores, the chi square test did *not* lead to the rejection of the hypothesis of good fit to the contagious Poisson curve. The same hypothesis was tested on Rorschachs obtained from a group of 23 medical and surgical interns and residents. The results are shown in Table 2. Once again, the Coleman curves fitted the Rorschach frequency distributions well. There was no score that was not satisfactorily represented by the Coleman function in at least one of our two samples; many

were well fitted twice. That 8% of the chi squares calculated came out to be "significant" below the 5% level does not suggest that forces other than chance are strongly influencing these data toward misfitting our expectations.

CHI SQUARE'S LIMITATIONS

There are some difficulties in using chi square, since, "Many rules of thumb exist, but as a conservative rule one is usually safe in using this chi-square test for goodness of fit if...expected frequencies are each 5 or more." (Hays, 1964).

To meet that requirement, categories often had to be combined, especially along the long right-hand tail of these distributions, where the expected frequencies were approaching zero as a limit. In our smaller sample, where only 23 cases were available, even some of the combined cells were a bit below the ideal size of 5. When no reasonable calculation could be performed, because of low cell entries, chi square was not computed. In such cases, the entry "rare" appears in Tables 1 and 2.

It is for this reason and because the contagious Poisson is defined in a way

Table 1

Chi Square Estimates of Goodness of Fit of Contagious Poisson Curves to Rorschach Frequency Distributions
(49 Harvard College Students)

Score	Chi Square	Degrees of Freedom	p	Score	Chi Square	Degrees of Freedom	p
R	0.5	1	n.s.	P	3.1	3	n.s.
W	9.2	1	<.01	O+	1.2	1	n.s.
W ₁	3.4	1	n.s.	O ₁	5.3	1	<.05
DW		rare		O ₂	6.2	1	<.02
Weard	0.8	1	n.s.	H	2.7	2	n.s.
D	2.3	2	n.s.	(H)	0.1	1	n.s.
Dr	0.6	1	n.s.	Hd	2.5	1	n.s.
Do	2.3	1	n.s.	(H)d	0.1	1	n.s.
d	0.9	1	n.s.	(A)	1.5	1	n.s.
de	2.8	1	n.s.	A	4.6	2	n.s.
di	4.5	1	<.05	Ad	1.0	1	n.s.
do	1.0	1	n.s.	(A)d		rare	
ds	2.9	2	n.s.	Aobj	4.2	2	n.s.
F+	0.9	1	n.s.	At	1.7	1	n.s.
F?		rare		X-ray	1.7	1	n.s.
F-	3.5	1	n.s.	Sex	0.1	1	n.s.
M	8.9	2	<.02	Obj	0.4	1	n.s.
FM	3.0	2	n.s.	Geog	2.6	1	n.s.
m	0.4	1	n.s.	Ld	1.8	1	n.s.
C	1.3	1	n.s.	Bot	2.9	1	n.s.
CF	0.4	2	n.s.	Clth	0.7	1	n.s.
FC	0.6	2	n.s.	Arch		rare	
Ch		rare		Art	1.4	1	n.s.
ChF		rare		Emb		rare	
FCh	2.1	1	n.s.	Food	3.1	1	n.s.
F(Ch)	1.6	2	n.s.	Geom	1.5	1	n.s.
C'		rare		Blood	1.8	1	n.s.
C'F	1.5	1	n.s.	Dyn	0.8	1	n.s.
FC'	0.2	1	n.s.	All other content categories are too rare to permit computation of chi square.			

that uses up two degrees of freedom by postulating both mean and variance as known, that the degrees of freedom in these chi square tests run so low. However, if we combine cells as nearly as possible by Hay's rule, we avoid "capitalizing on chance" by smoothing

the curves more whimsically. The findings in Tables 1 and 2 are conservative. Inspection of the distributions often suggests further information. Some of the curves fit so closely that they might please even an astronomer. (See Figure 2.)

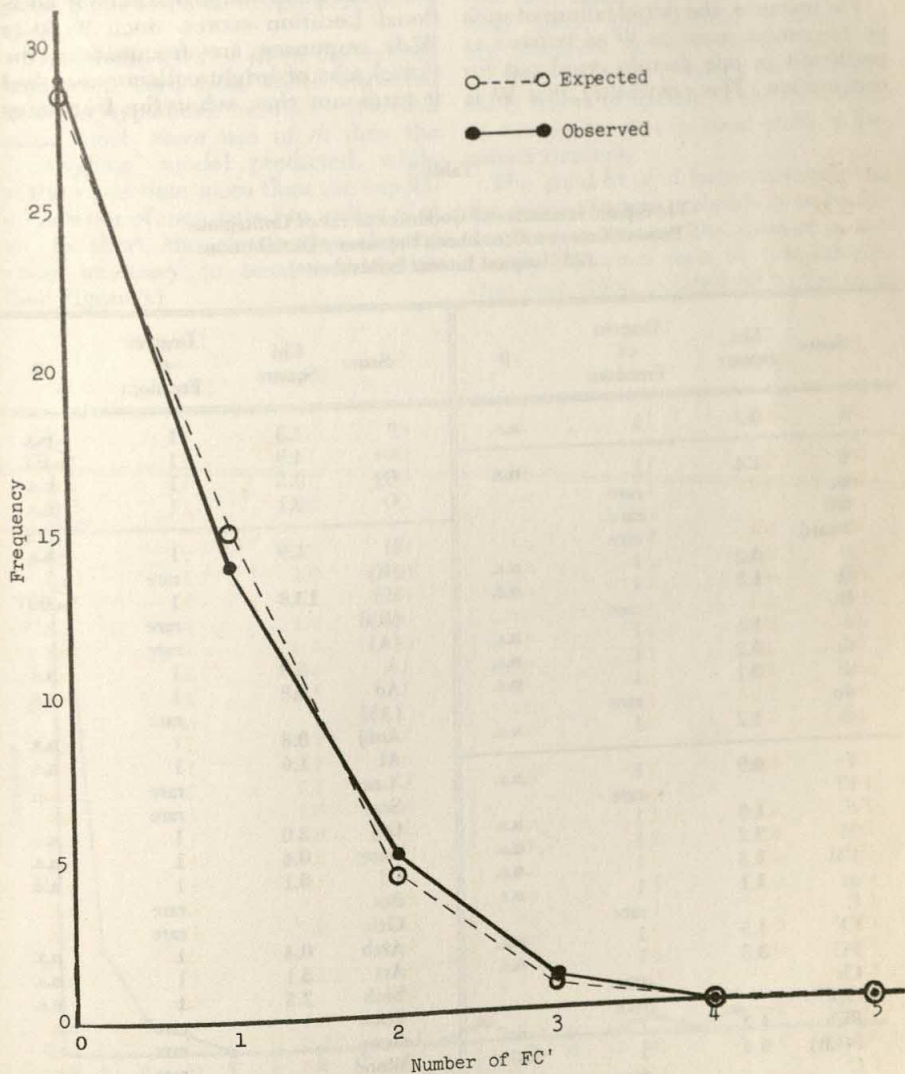


Fig. 2 Frequency Distribution of FC'

THE FAILURES OF GOOD FIT

What are we to make of the instances where chi square was "significant" and there was a less than .05 probability that our observations were drawn from a population of scores in which Coleman's contagious Poisson distribution was the underlying distribution function? Each such failure is worth examining.

For instance, the initial failure of such an important score as *W* to behave as predicted in one sample cried out for explanation. The possibility that *W* is

not unitary is raised often in Rorschach literature. The subtypes of Whole Responses are variously labelled (Beck, 1933; Phillips and Smith, 1953; Rickers-Ovsiankina, 1960), but they are at bottom all contrasting simple, single percepts with complex elaborated ones. One way to get at this contrast is to count the "elaborated Wholes" whose complexity is shown by the fact that to the *W* has been added one or more additional Location scores. Such *W(D)* or *W(d)* responses are frequent in the Rorschachs of bright college men. And it turns out that, when the frequency

Table 2

Chi Square Estimates of Goodness of Fit of Contagious Poisson Curves to Rorschach Frequency Distributions
(23 Hospital Interns & Residents)

Score	Chi Square	Degrees of Freedom	p	Score	Chi Square	Degrees of Freedom	p
R	0.2	1	n.s.	P	1.3	1	n.s.
W	1.4	1	n.s.	O+	4.9	1	<.05
W _r		rare		O±	0.5	1	n.s.
DW		rare		O-	0.1	1	n.s.
Wcard		rare		H	1.9	1	n.s.
D	0.2	1	n.s.	(H)		rare	
Dr	1.3	1	n.s.	Hd	13.8	1	<.001
Do		rare		(H)d		rare	
d	1.6	1	n.s.	(A)		rare	
de	0.2	1	n.s.	A	0.8	1	n.s.
di	0.1	1	n.s.	Ad	0.8	1	n.s.
do		rare		(A)d		rare	
ds	1.2	1	n.s.	Aobj	0.8	1	n.s.
F+	0.9	1	n.s.	At	1.6	1	n.s.
F?		rare		X-ray		rare	
F-	1.5	1	n.s.	Sex		rare	
M	2.2	1	n.s.	Obj	2.0	1	n.s.
FM	1.3	1	n.s.	Geog	0.4	1	n.s.
m	1.1	1	n.s.	Ld	0.1	1	n.s.
C		rare		Bot		rare	
CF	1.5	1	n.s.	Clth		rare	
FC	3.3	1	n.s.	Arch	0.4	1	n.s.
Ch		rare		Art	3.1	1	n.s.
ChF		rare		Emb	2.5	1	n.s.
FCh	1.2	1	n.s.	Food		rare	
F(Ch)	5.4	1	<.05	Geog		rare	
C'		rare		Blood		rare	
C'F		rare		Dyn	3.8	1	n.s.
FC'		rare		All other content categories are too rare to permit computation of chi square.			

distribution of Elaborated W is compared to a "contagious Poisson" with the same mean and variance, chi square is 1.6, with 2 degrees of freedom, a fit that has a probability of about .44 and may be taken as acceptably explained by the Coleman curve. It is, of course, this process of weaving large, elaborate concepts that is most pertinent to interpreting a "W tendency" as auto-contagious. Some respondents get to spinning ideas . . .

The frequencies of *di* in the college sample differed from those expected from our hypothesis because a few men made much more use of *di* than the "contagious" model predicted, while at the same time more than the expected number of men failed to utilize *di* at all. In short, the distribution showed some tendency to become bimodal. (See Figure 3.)

Such a picture is consistent with the clinical observation that *di* recurs in the Rorschachs of those students who are demonstrably neurotic or psychotic. These interior details carved out of "a blot area which seems to be an unbroken area to a preponderant majority of all subjects" (Klopfer & Kelley, 1942) are an "abnormal sign," especially when used repeatedly by a testee (Phillips and Smith, 1953; Rickers-Ovsiankina, 1960). Our normal expectations are therefore not necessarily going to be met. Indeed, it might be an applicable figure of speech to say that, when *di* contagion gets a good start, it becomes virulent.

The good fit of *di* frequencies among the young doctors probably is to be understood in terms of the absence of any clearly abnormal men in that sample. One case stood isolated off to the right

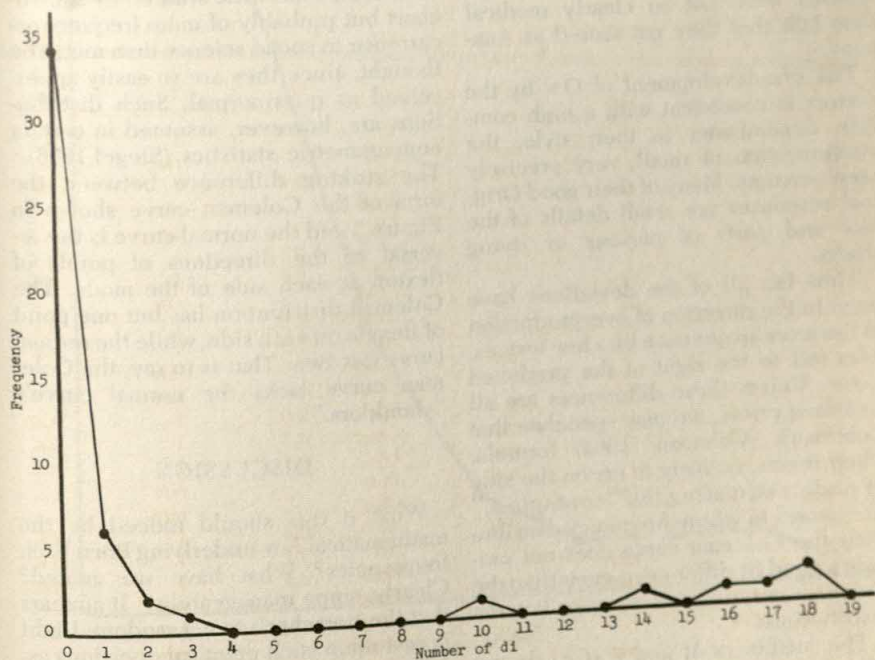


Fig. 3 Frequency Distribution of *di*

of that frequency curve, which is therefore reminiscent of, but not nearly as skewed as, the students' curve shown in Figure 3.

Similar phenomena occur in O^+ and O^- in the college men's tests. The O^- distribution appears to be multimodal, but this is probably a result of small sample size. What is clear is that some men develop these poor originals obsessively -- and these men are clinically demonstrated on other evidence to be mentally ill. That is surely no surprise to a Rorschacher. What is interesting is that O^+ shares that property; apparently the accurate but unduly emotional responses so scored should also be regarded as idiosyncratic rather than creative.

The development of Hd by the doctors' group is occasionally greatly exaggerated. Perhaps such overconcern for images of parts of persons may be understood as an artifact of our using medical men in our sample -- although it must be recognized that these responses were not so clearly medical shop talk that they got scored as Anatomy.

The overdevelopment of O^+ by the doctors is consistent with a high common denominator in their style: the multiplication of small, very precisely seen percepts. Many of their good Original responses are small details of the blot and parts of persons or living things.

Thus far, all of the deviations have been in the direction of overproduction of the score in question by a few testees, who fell to the right of the predicted curve. Unless these differences are all sampling errors, we may speculate that Coleman's (Coleman, 1964) formula, when it errs, is likely to err on the side of underestimating the "contagion." The scores to whose frequency distributions the Coleman curve does not provide a good fit differ even *more* than the Coleman curve from normal or Poisson distributions.

The misfits in M and F (Ch) do not fall into that pattern, however. Nor does inspection of their distribution or

knowledge of the Rorschach test suggest any after-the-fact explanation of their poor fit. It is just possible that our Movement Score is not unitary but there is no reason to believe that the Differentiated Shading Score is not. Both patterns can be made to show a chi square that is not "significant" by the choice of slightly different ways of smoothing their curves, if we elect to capitalize on chance in that way.

THE SHAPES OF THE DISTRIBUTIONS

The Coleman curve does not always have the die-away appearance shown in Figure 1. This form occurs when the median is at zero; if you move the median a few units to the right, you get the asymmetric form shown in Figure 4. If you move the median still further from zero, you get a symmetric non-normal distribution like that in Figure 5. The "symmetric but not normal" distributions are a class little studied by statisticians but probably of more frequent occurrence in social science than might be thought, since they are so easily apperceived as quasinormal. Such distributions are, however, assumed in certain nonparametric statistics (Siegel, 1956). The striking difference between the form of the Coleman curve shown in Figure 5 and the normal curve is the reversal of the directions of points of flexion at each side of the mode. The Coleman distribution has but one point of flexion on each side, while the normal curve has two. That is to say, the Coleman curve lacks the normal curve's "shoulders."

DISCUSSION

What if this should indeed be the mathematical law underlying Rorschach frequencies? What have we gained? Clearly, some manageability. It appears that the Rorschach is not random. Light is cast upon such practical questions as, "What is an abnormal frequency?" or "Are these two groups of scores derivable from one population?" But there

are also speculations raised about the models of the Rorschach Test suggested by the fit of this mathematical process. In fact, the really interesting questions raised by our empirical finding that Rorschach responses follow Coleman's curve is how we are going to explain this phenomenon. What is now our concept of the psychological process evoked during the Rorschach test?

IMPLIED MODELS FOR THE RORSCHACH

To begin most generally: Polya (Coleman, 1964, p. 301) represents the case with an *urn model*. "In contrast to the usual binomial model of drawing with replacement, Polya's model involves not only replacement of the ball drawn, but also adding to the urn a new ball of

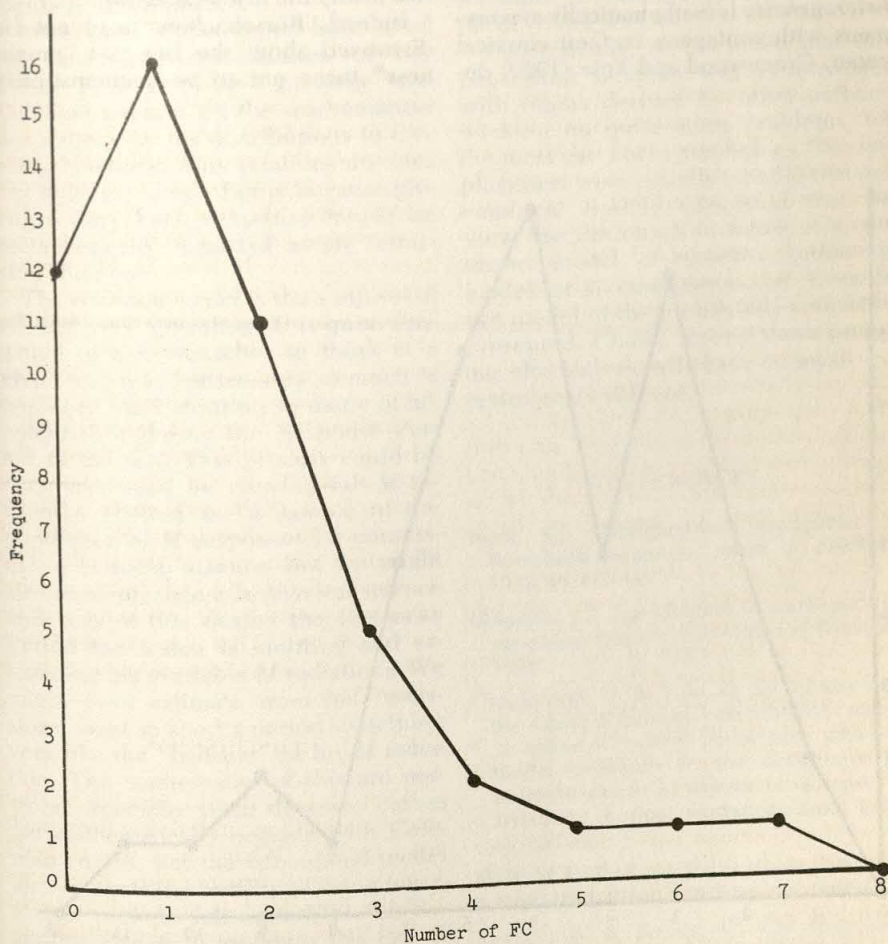


Fig. 4 Frequency Distribution of FC

the same color. This way, numerous drawing of one color of a ball would result in a greatly increased probability of that color being drawn."

This is a mathematically general statement of the *contagion model* from which Coleman had been working. Indeed, his formula is transposable into Polya's. It would seem that adding another ball of the same color to the urn is not a bad analogy for increasing the sensitivity of the testee to a certain kind of possible response, whenever he makes a response of that kind.

Coleman (1964) was much disappointed to discover that a model of *heterogeneity* is mathematically synonymous with contagion. In their classical paper, Greenwood and Yule (1920) de-

rived the same sort of distribution "from assumptions that have heterogeneity and no contagion." This is the model Lundberg (1940) used to explain both accident proneness and disease. "As a working hypothesis" suppose that the population is composed of individuals with different degrees of accident proneness, represented by different values of b in a Poisson distribution, and suppose..." Suppose that Rorschach testees have different degrees of response proneness? That is, indeed a customary premise of the test! It is the heterogeneity of response tendencies that justify the test's existence.

Indeed, Rorschachers need not be distressed about the fact that "prone-ness" turns out to be mathematically

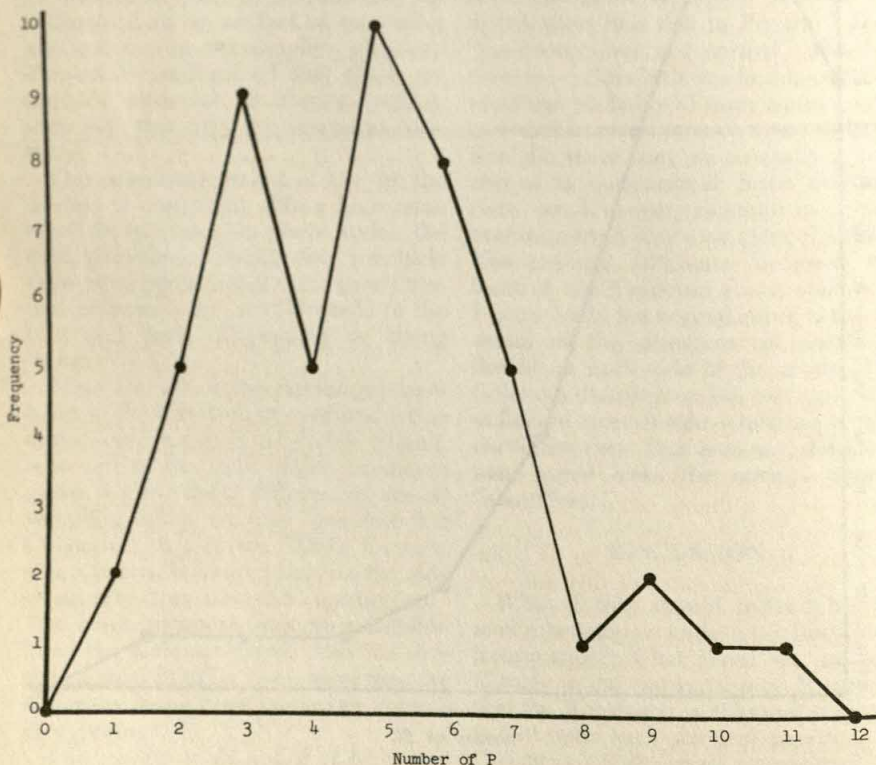


Fig. 5 Frequency Distribution of P

synonymous with "heterogeneity" as an explanation of these frequency distributions. That is to say, either the proposition is that "once started on *M* responses, the testee is more likely to continue *M* responses" or the proposition is that "various individuals have various propensities for *M*-responding." Either idea has the same result in predicting responses to a test.

These two concepts are, of course, different in their consequences for personality psychology. For that purpose, we may hope that if heterogeneity and auto-contagion are not distinguishable mathematically, they may be experimentally differentiated.

In our own discussion, we have noted the superficial resemblance of our Figure 1 curves to the "die-away" and Coleman remarks on the mathematical equivalence of his distributions to die-away functions. This relationship cries out to be explored--if only because giving a Rorschach response might be metaphorically regarded as an "emission" function.

The *emission model* is the simplest of all, and very appealing. It is quite congenial to a Rorschacher to think of a given testee as "possessing so much *M* tendency" and emitting so many of his potential *M* during the Response Period of the test. This process could be mathematized by viewing the *M* responses elicited as "a sample of the population of *M* responses he possesses"--a la social science--but we might also conceptualize a la physical science and suggest that during the Response Period the testee is emitting and *exhausting* his available *M* radiations. We might even estimate from his "emissions" over so short a period something very like the "half-life" of his *M* radiation. The mathematics of this are possible, especially since die-away curves are mathematically cognate with Coleman curves, but the conceptual model also suggests the fertility of using several test periods subsequent to the Response Period to ascertain the rate of decrease of, say, *M* response radiation. In this connection, we might explore

the usefulness of Coleman's functions "with exhaustion."

CONCLUSION

This paper explored the hypothesis that Rorschach scores have frequency distributions for which a "contagious Poisson" formula derived by Coleman may be the generating function.

Empirically, 92% of the scores examined distributed according to the Coleman function closely enough to meet the usual chi square test of goodness of fit. Two samples of Rorschach tests given by two examiners were used; one a sample of undergraduates, one a sample of young doctors.

Theoretically, it was noted that this generating function was synonymous with others derived by other authors, working on quite other problems, for the most part not in psychology. The implications were equally tenable that our empirical finding suggested that we view the Rorschach in terms of a contagion model, a response proneness model, or an emission model. Even an urn model of the probabilities could be presented. Choice among these tempting alternatives will have to await experimental evidence.

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THE EFFECT OF CUE RELEVANCE, AMBIGUITY, AND SELF-REPORTED HOSTILITY ON TAT RESPONSES¹

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Summary: The interaction of cue relevance and ambiguity was studied. Ss high or low in self-reported hostility were administered 8 TAT cards, half of which were high in hostility cue relevance, half low. Half of each subset, in turn, was high in ambiguity, half low. Highly relevant cards tended to elicit more aggressive content than low relevant cards, and stories to ambiguous cards tended to contain more aggressive themes than unambiguous ones, independent of hostility relevance. Hostile Ss tended to be best discriminated from non-hostile Ss on highly relevant cards, where they responded with more aggressive themes. Results were contrasted with previous findings and it was concluded that consistent with findings where hostility is defined by observation or arousal, highly relevant cues are most sensitive to hostility level. While greater expression of negative content, increments in ambiguity did not add to the sensitivity of the stimuli.

The present study is an attempt to investigate the interaction of hostility relevance and ambiguity of Thematic Apperception Test (TAT) cues in determining differences between high and low self-reported hostility groups. While a good deal of research findings, many of them contradictory, deal with the two cue variables separately, (c.f. reviews by Murstein, 1963, and Zubin, Eron, & Schumer, 1965), no literature exists with regard to their interaction in differentiating between groups high and low in a given behavior.

Studies linking TAT responses to subject hostility have generally reported a direct relationship between the two (Mussen & Naylor, 1954; Purcell, 1956; Stone, 1956; Kagan, 1956; Murstein, 1965a), although some report a direct relationship only if such factors as guilt (Saltz and Epstein, 1963), maternal permissiveness (Lesser, 1957) and aggression anxiety (Pittluck, 1950; Lesser, 1958) are taken into account. The relationship between subject and TAT hostility is further modified by the degree of hostility relevance of the card. When overt hostility is defined by observation or peer rating, cues of high or

medium relevance tend to best differentiate subjects rated high or low in this trait (Kagan, 1956; Stone, 1956; Murstein, 1963; Coleman, 1967, James & Mosher, 1967). Contradictory evidence is forthcoming from Jensen (1957), Brenner (1961), and Murstein (1965a), who found no relationship between ratings of subject hostility and TAT hostility on either low or high relevance cards. When hostility is defined by experimental arousal, high cue cards tend to discriminate best between extreme groups (Feshbach, 1955; Hokanson & Gordon, 1958; Weatherly, 1962). Opposite effects seem to be prevalent when hostility is self-reported; in this circumstance, low cue pictures tend to be more sensitive to differences in hostility (Murstein, 1963; 1965a; Saltz & Epstein, 1963). It is obvious that observer and self-ratings of hostility constitute quite different phenomena.

Murstein (1963), in an excellent discussion, makes a lucid distinction between cue relevance and ambiguity. The former is defined as value or clarity of a stimulus with relevance to a specific behavior, the latter as uncertainty of meaning or categorization. It follows therefore, that ambiguity is best defined by variability of response. In a review of research with ambiguity, Murstein (1965b) concluded that personality assessment is best with un-

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ambiguous or moderately ambiguous cues, a curvilinear relationship existing between ambiguity (as defined by judged number of categorizations for each TAT card) and productiveness of responses (Bijou & Kenny, 1951; Kenny & Bijou, 1953; Murstein, 1958; Kagan, 1959).

While low or medium ambiguity seems to be best for maximizing productiveness or "personality revealingness" as determined by Q-sorts of responses by clinicians (c.f. Bijou & Kenny, 1951), it remains to be seen what level of ambiguity best differentiates between extreme groups on a given trait, and how the ambiguity factor interacts with levels of cue relevance for the trait in question. It would be expected that subjects high in self-reported hostility would be differentiated from their low scoring counterparts, in terms of TAT hostility content, on stimuli with low hostile relevance, and this discrimination would be maximized when the stimuli are relatively unambiguous.

Before proceeding with the experiment, one point requires mention. Lesser (1961) has distinguished between two methods of determining ambiguity: the intra-individual method, exemplified by having subjects rate the cards for estimated number of possible interpretations, and the inter-individual approach, which would involve recourse to thematic norms and examination of relative variability and frequency of themes to a given card. The two do not result in equivalent rankings of the TAT for ambiguity, as Murstein (1958) found a curvilinear relationship between rated ambiguity and normative productiveness of themes. In the present study it was decided to use the latter method as it would seem preferable to determine ambiguity by the variability of *responses* in a reference group than by the ratings by judges of the uncertainty of the meaning of a *stimulus*. The former method would seem more consistent with our definition of ambiguity as uncertainty of *response*.

METHOD

Subjects

Subjects were females enrolled in an Introductory Psychology Course who participated in the experiment as a part of course requirements. Initially, 489 females were administered the 16 item Behavioral Hostility Scale (Sarason & Winkel, 1966). Ss falling in the upper quartile (score > 10) were designated as High Hostile, and the lower quartile (score < 5) as Low Hostile. Forty one Ss from each group were randomly chosen to participate in the experiment.

Selection of Materials

TAT cards were chosen on the basis of hostility relevance and ambiguity. Criteria for selection of high relevance cards were as follows:

- (a) The more dominant theme in a normative sample (Eron, 1953) was one of aggression.
 - (b) The Equal Appearing Interval Scale value as determined by the Thurstone Method (Murstein, David, Fisher, & Furth, 1961) was in excess of 6.0, or in the upper quartile of judged hostility.
- Low relevance cards had to meet the following criteria:
- (a) No aggressive theme for the given card could appear with greater than 10% frequency in Eron's normative sample (Eron, 1953).
 - (b) The Equal Appearing Interval Scale value for judged hostility was less than 4.0 out of a possible 9.0.

Ambiguity was determined by reference to relative frequency of themes in the Eron (1953) norms. Cards of low ambiguity were defined as those in which the most dominant theme appeared with greater than 35% frequency in the responses of the normative group, this theme having an appearance rate of at least 20% greater frequency than the next most popular theme. Highly ambiguous cards required that there be no theme with greater than 35% frequency of appearance, with the two

most dominant themes being within 20% frequency of one another.

In this manner, 8 cards were chosen as experimental stimuli. Cards 18GF and 3GF were high relevance, high ambiguity cards, 13 MF and 11 were the high relevance, low ambiguity stimuli, 16 and 7GF were low relevance, high ambiguity cards, and cards 1 and 2 comprised the low relevance, low ambiguity condition. Mean Thurstone Scale Values for hostility relevance and proportions of appearance of most dominant theme in normative responses are presented in Table 1.

It is interesting to note that there is little agreement, at least in the case of the 8 stimuli in the present study, between ambiguity as determined by reference to Eron's norms and ambiguity of "what is going on," and "why is this happening" as determined in Murstein's (1964) normative study of ambiguity. In the latter study, mean uncertainty values for the cards designated in the present study as ambiguous and unambiguous respectively were .59 and .57 for "what," and .67 and .66 for "why." The most dramatic example of this discrepancy was card 3GF, which was one of the least ambiguous cards in the Murstein findings while eliciting 8 different themes with frequencies of 10 to 15% occurrence in normative responses (Eron, 1953). This discrepancy may be accounted for by the fact that

Eron's classifying schema for content contains a large number of distinct categories, while Murstein's scoring system was more circumscribed. Since the number of categories affects uncertainty value (c.f. Murstein, 1964, p. 213), it is likely that differences in ambiguity would be found between the two procedures.

Procedure

The 8 stimulus cards were presented in random order to all Ss in a group presentation. Each card was projected onto a screen and Ss were given the following instructions:

You are participating in a study designed to determine the typical stories told to pictures by college students. You will be shown a number of pictures. Your task is to make up as dramatic a story as you can for each. You are to tell what led up to the event shown in the picture, describe what is happening at the moment, what the characters are feeling and thinking, and then give the outcome. Write your thoughts as they come to your mind; literary masterpieces are not required. Do not compare stories with your neighbors. You are allowed a maximum of 5 minutes on each card. You will be warned when 4 minutes have elapsed so that you can wrap up your story.

The procedure was therefore a 2 X 2 X 2 Analysis of variance design, with self reported hostility, cue relevance, and ambiguity as the factors.

Table 1

Mean Thurstone Scale Values for Hostility and Mean Proportion of Appearance of Most Dominant Themes in Normative Responses of Experimental Stimuli

	High Hostility Relevance		Low Hostility Relevance	
	Hostility Scale Value	Dominant Theme	Hostility Scale Value	Dominant Theme
High Ambiguity	7.68	.18	2.49	.25
Low Ambiguity	7.47	.58	3.30	.56

Table 2

Mean Number of Aggressive Themes

Self Reported Hostility	Hostility Relevance of Cue							
	High				Low			
	High	Low	High	Low	High	Low	High	Low
	M	SD	M	SD	M	SD	M	SD
Ambiguous Stimuli	2.32	1.42	1.90	1.14	.63	.76	.73	.84
Non-Ambiguous Stimuli	2.00	1.32	1.66	.96	.24	.55	.34	.66

RESULTS

The number of aggression-related themes, in terms of Eron's (1953) thematic scoring categories, was tabulated for each story. Interrater reliability, as determined by percentage agreement, was .86 for a random sample of 20 Ss (160 stories). Mean number of aggressive themes for each stimulus condition are presented in Table 2. The scores refer to aggressive themes per subject summed over the pair of cards in each stimulus condition.

Significant main effects were found for cue relevance ($F = 180.0$; $df = 1,80$; $p < .01$) and Ambiguity ($F = 9.13$; $df = 1,80$; $p < .01$), and a significant interaction effect was found for self-reported hostility X cue relevance ($F = 4.64$; $df = 1,80$; $p < .05$). The stimuli with high relevance for hostility elicited more aggressive themes than low relevance cards. Ambiguous cards tended to elicit more aggression than non-ambiguous cards, regardless of relative hostility relevance. Highly hostile Ss were best distinguished from their non-hostile counterparts on high relevance cards, having more aggressive content. On low hostility relevance cards, there was a slight tendency for hostile Ss to respond with *less* aggression than non-hostile Ss. The personality groups did not respond differentially to the ambiguity of the cards.

DISCUSSION

It is of little surprise that more aggressive themes were elicited with the cards of high hostility relevance since this was the case normatively. It is of interest, however, that ambiguous cards, whether hostility relevant or not, elicited more aggressive themes from both hostile and non-hostile Ss. It may be that socially disapproved behaviors, such as aggression, find their expression to a larger extent in ambiguous situations. This greater ease in *expression*, however, is true for Ss both high and low in this trait, hence ambiguity did not result in an increase in *discrimination* of levels of the trait in question. Hence, the finding of no interaction between ambiguity and self-reported hostility, i.e., the finding that level of ambiguity was not instrumental in distinguishing between the groups, supports Murstein's (1963) conclusion that increasing ambiguity of stimuli does not necessarily lead to greater sensitivity of the instrument. It would be interesting to replicate the present study with a more socially accepted variable, e.g. achievement, to see whether such behaviors find greater expression in unambiguous situations.

Levels of self-reported hostility were best discriminated when cues were highly relevant to the behavior in question. This is in contradiction to the

greater sensitivity of low relevance pictures in discriminating self reported hostility reported by Murstein (1963, 1965) and Saltz & Epstein (1963). The discrepancy with the Saltz & Epstein study may be due to the fact that they chose their Ss on the basis of high and low guilt over hostility as well as hostility level. With low relevance cards, they found an inverse relationship between TAT expression of hostility and self-reported hostility in Ss with high hostility guilt, and a positive relationship in low hostility guilt Ss. It is conceivable that, in the present study, with Ss unselected as to guilt, these effects cancelled themselves out, resulting in no differentiation on the low relevant cards. In the Murstein (1965) study, hostility was defined by rating oneself in relation to peers on the dimension of "friendliness," the assumption being made that low ratings imply hostility. To the extent that this assumption is warranted, the present findings are contradictory. Murstein had the further condition of an instructional set to "look your best" for half the Ss. It was under this set that "unfriendly" Ss projected more hostility to low relevance cards than "friendly" Ss. Since the present study used instructions generally considered to be neutral, the studies seem to coincide in that no differences between S groups were found on low cue, cards with neutral instructions. The present findings question, therefore, the conclusion raised by Murstein (1963, p. 319) that low relevance cards tend to best discriminate between Ss high and low in self-reported hostility. It would seem from the present study that self-reported hostility, similar to peer rated and experimentally aroused hostility, is best measured on cues of medium to high relevance.

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EXPRESSIVE STYLE AS A DEVELOPMENTAL INDEX IN LATE ADOLESCENCE

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Summary: The purpose of this study was an investigation of normal late adolescent expressive style and adaptive modes. The method was a comparison of writing styles across three age groups (adolescent, late adolescent, and adult) and two academic groups (college and noncollege). A small sample pretest yielded descriptive statements which are summarized into three criteria: "flamboyant" "impersonal" and "constricted." The test proper required judges to apply the criteria to 59 story pairs written to cards 2 and 18GF of the TAT. Reliability was assessed separately for each criteria: $R = .94$ for "flamboyant," $.83$ for "impersonal" and $.78$ for "constricted." Late adolescents were judged to be "flamboyant" in writing style significantly less often than the other two age groups: ($X^2 = 12.24, p = .01$) and "impersonal" significantly more often ($X^2 = 12.8, p = .01$). The expressive style of late adolescents is moderate in emotional tone and heavily reliant on intellectualizing defenses, a style which facilitates the meeting of developmental tasks of late adolescence.

The purpose of this study is to evolve a description of the defensive and adaptive modes peculiar to late adolescence, that developmental period which encompasses the years from 18 to 22. The method of study is an examination of the expressive style of late adolescents as it is reflected in stories written about pictures from the Thematic Apperception Test (TAT).

The precedent for considering late adolescence as a developmental period in its own right has been well established by Erikson (1956) and Blos (1962). These authors describe this period as one in which the dependent tie to the parent is weakened and attenuated and in which the value system derived from the parents is reexamined by the late adolescent and modified and transformed to meet his own needs and characteristics. Expressive style has been utilized as an index of psychopathology, (Balken and Masserman, 1940; Newman and Mather, 1938) and as a reliable reflector of character style (Allport, Walker and Lathers, 1934). It has been extensively utilized as an index of cognitive development from childhood to the end of adolescence (Stern, 1925; Piaget, 1926). Expressive style has been less extensively utilized as an indicator of psychological

development and defensive structure, although its potential value in this area has been clearly indicated (Newman, 1939; Rosen and Neugarten, 1960).

From this background of research some general expectations were formed to shape inquiries about the writing of late adolescents. It was expected that age groups would react in characteristically different ways to a task which involved expression of fantasy and that writing style would change as the writer moved from adolescence to late adolescence; that is, as their preoccupations, general mood and life situation change with age, their writing style should change. As Piaget (1926) and Stern (1925) have indicated, an increase in balanced, rational and moderate expression can be expected as adolescents move into late adolescence.

PRETEST

Rationale

A potentially profitable source of information about late adolescence is the observations from extensive experience made by people who have worked with this age group. The pretest attempts to tap this source of information. English composition teachers have

ideas and observations about the change in writing style during this age period; they certainly have an extensive experience with written expression. Clinical psychologists in college settings have a more limited experience with late adolescent writing but are familiar with the possibilities of the TAT. They are also likely to have continuing contact with late adolescents in college settings, contact ranging from a few hours to 300 hours. The contact involves close attention to cognitive style and language usage as evidenced in spoken communication. Both groups often speak informally about the characteristics of late adolescents. It seemed possible that both English teachers and psychologists might be able to provide leads about late adolescent expressive style by way of their intuitive generalizations from their own experience.

Method

A group of judges, four English composition teachers and four clinical psychology graduate students trained in college settings were asked to evaluate stories from 15 subjects. They were told that five of the story pairs were written by adolescent girls, five by college juniors, and five by adult women who were college graduates. They were asked to rank order the stories as to degree of certainty that they were written by late adolescents (i.e., according to how closely the stories corresponded to their own impression of what was characteristic of this age group). They were then asked to examine their first choices, their surest choices, and to list what it was about the stories that seemed typically late adolescent. Since both English composition teachers and psychologists probably use other data than their own experience in forming an impression of late adolescents, they were asked to rank the story without any information about the age of the writer. In this way, accuracy of their generalizations could be assessed. Could they identify the late adolescent stories? If they had known the ages of

the story writers, there would have been no way of gauging contamination from sources of information about adolescence which the judges might have in common, probably resulting in a shared preconception "or" "set to see" certain trends in certain age groups.

TAT Cards 2 and 18GF were chosen as stimuli on the basis of Henry's (1956) normative work on the TAT. Henry's description of Card 2 indicates its relevance to late adolescent problems.

"The picture's basic emotional stimulus is in two areas: a. The stimulus of interpersonal relations proper and the challenge of a number of people together: Its particular stimulus demand is to deal with the relationship of younger to older and of male to female. To this extent it is useful for eliciting feelings toward interpersonal interaction, toward parent-child relations, and toward heterosexual relations. b. The contrast between the new and the old, as represented by the story of the girl going off for education as opposed to the farm folks: In this respect it is a useful picture in activating attitudes toward personal mobility and ambition, and the extent to which the individual sees the traditional as valuable or as inhibiting."

The second card (18GF) was chosen in an attempt to maximize the possibility of affective arousal so that defensive techniques would be evidenced. Minkowitz (1958) studied subjects from this age group with projective methods like the Blacky Test and with attitude questionnaires, and concluded that late adolescent girls express more moral concern over problems of aggression than any other subject.

Henry's (1956) description of Card 18GF concludes that:

"It might therefore still be appropriate to propose this (card) as stimulus of aggression and to concern ourselves with the ways in which subjects attempt to deny and cover up this recognition."

Subjects

The subjects who wrote the stories for this exploratory phase were matched as carefully as could be contrived

since the age difference was to be the important variable. The three pretest groups were matched along the following dimensions: sex, intelligence, social class, and birth rank in the family. The subjects were five high school juniors, five college juniors, and adult women between 30 and 40 who were all married and all had children.

Results

The pretest questions were: Could the judges identify late adolescent writing and did they often agree among themselves on the characteristics of late adolescent writing? The latter question is important if we are to establish some characteristics as typical of the age group. In fact, Allport, Lathers and Walker (1934) warn us to expect that individual criteria may be discovered but not group criteria. The rankings of the judges were examined to see if it might be assumed that they were using the same general criteria. A coefficient of concordance of .48 was obtained among the eight judges. A W of this size is significant at the .001 level and may signify that the judges are applying essentially the same standard in ranking the subjects under study.

Second, we would like to be able to assume that the judges, because of background and experience, are accurate judges of late adolescent writing style. The coefficient of concordance tells us that the judges are using essentially the same standard but not whether they were correct in their judgments significantly more often than would be expected by chance. The accuracy of their judgments was assessed with a Cochran Q Test ($Q = 28$, $df = 14$, $p = .02$).

A second Q Test was performed on 10 of the story categories instead of the original 15; five of the non-late adolescent stories were discarded to correct for the slightly elevated probability of correct guessing. The level of significance changes to .10 under this circumstance ($Q = 15.59$, $df = 9$, $p = .10$). This is still a satisfactory level which allows us to

assume that the judges have an accurate sense of late adolescent writing style.

The criteria evolved as a description of late adolescent writing style were an amalgamate formed from the descriptions provided by the judges. Some examples of characteristics of late adolescent writing style which the judges have supplied are:

a.) Comments on the kind of language used: "... a self-conscious seriousness in the late adolescent writing as opposed to the lability of adolescents and the mature, less intense, more acclimated style of adults," "... a self-conscious talking about their own internal cognitive processes; e.g., "Though one's attention is centered immediately not on the landscape, but. . ." "Vocabulary used could have come from college courses 'physical setting,' 'connotating a conflict of ideas,' 'indicative of the desire to guard old and secure traditions,' 'sibling,' 'hostilities,' 'well-adjusted,' 'inadequate.'"

b.) Another valuable criterion often used was ably summarized by a prescient English composition judge who, misunderstanding the directions, correctly identified *all* of the age groups. She says, "The late adolescent takes the role of an omniscient observer who can control the impression conveyed to the reader and who can account for the behavior and motives of several of the characters while they identify with one of the younger characters. The college students maintain a distance between the narrator and the character . . . the college students respond to the material as if it were an examination . . . the college student, trained to look for contrasts and conflicting ideas, tries to analyze a situation and resolve it." Another rater makes a similar observation, "Focus in the late adolescent stories is most generally on the thoughts of figures, yet with an ability to describe very sensitively the feelings of those in different roles and of different ages." Adolescent and adult stories are correctly discriminated by the lack of the distancing and intellectualizing devices. Their stories are

described as dramatic, urgent, intense, immediate. Strong identification with a given role as a clue to age was a frequently used criterion but a deceptive one; "Strong emphasis on mothering" caused many wrong decisions among the judges.

In examining the stories, one is struck by the late adolescent tendency to change disturbing personal problems, regressive yearnings into universalities, to see people as "standing for" or "symbolizing" something other than an immediate parent or self-representation. "There is a contrast in details, perhaps connoting a conflict of ideas. . . Her mother is indicative of the desire to guard old and secure traditions. . . With the *feeling of many mothers*, this mother figure seems to be pleading for the continuing companionship of this youth." "She has time to reflect upon the meaning and purpose of life." . . . "As is natural in *such situations*, the mother dwells on her shortcomings." "To the observer, the painting is a reminder of the hardship of former generations, of the human labor that was utilized instead of machines."

In summary, the pretest findings lead us to expect differences between the writing style of late adolescents and that of the other age groups in:

- a) Language usage.
- b) The expression of affective involvement.
- c) The extent to which the focus is on impersonal, intellectual questions.

A test of the descriptive usefulness of our judges' observations was next attempted. Could their observations be summarized into a brief description of late adolescent writing that would implement the accurate selection of late adolescent stories from stories written by adolescents and adults? The test proper attempts to investigate this possibility.

Test Proper

Method

The data of this study consisted of

stories written to TAT Cards 18GF and 2 as in the pretest exploratory portion. The two TAT cards were administered with standard TAT directions to groups of subjects. The subjects were encouraged to keep their reactions to the cards to themselves until the testing session was over. They were asked to confine their story length to one side of an 8½ x 11 ruled sheet of paper so that frequency of appearance of certain themes would not be merely a function of verbal fluency.

The first task was to write three codes consisting of short descriptions of writing styles based on the suggestions provided by the pretest. Style I is summarized as "flamboyant." The description provided to the judges was: "The subject's writing style shows a capacity for melodramatic, flamboyant, personal, hammy self-expression. She seems to enjoy letting herself go, using many 'exclamation point' statements and naive clichés." The subjects whose writing was considered to meet criterion I and who were included as such in the statistical analysis were scored "I", "III-I", add hypothetically, "II-I" although the last combination was never used by the judges.

Style II is summarized as "impersonal." The description provided to the judges was: "The subject's writing shows an emphasis on intellectual control. She tends to an Olympian, dispassionate stance and often sounds like a rather condescending blue-stocking. She accounts for everybody's point of view but intellectually, dryly, perfunctorily. She may justify percepts by a nervous description of picture cues: 'It looks like a woman from the curve of the hair but from the angle of the elbow, you might say. . .'. The subjects whose writing was considered to meet this criterion were scored II or II-III by the judges.

Style III is summarized as "constricted." The description of this criterion provided to the judges was: "The subject's writing is matter of fact, rather unadorned and somewhat constricted. She accounts for the picture but adds

little that is either personal (as criterion I subjects might) or general (as criterion II subjects might)." The subjects whose writing was considered to meet this criterion and so were included in the statistical analysis of criterion III were those whose stories were scored III, III-I, or III-II.

The 60 story pairs were submitted to two judges who were asked to classify the subjects' stories in one of the three categories. They had no information about the age group of any subject. They were permitted to use the other two categories also if they felt it necessary to describe the subject's writing style. For example, a subject could be classified "III" if her writing style were constricted, or "III,II" or "III,I" if it were constricted but with elements of one of the other two styles. Reliability was assessed separately for the three style groups; the basis for assessment was "agreement that the writing style is flamboyant" or "impersonal" or "constricted."

The judges were inclined to score "III,I" and "III,II" more often than "I" or "II". This warns us against a literal application of the criteria descriptions: they seem to be reacting to the descriptions as if the descriptions were liable to a certain degree of overstatement. This was not intended. But the judges' consistent and cautious overuse of category III as a qualifier to their judgments warns us that they consider the descriptions too extreme. Interjudge reliability for the "flamboyant" criterion was .94; for the "impersonal" criterion, .83; for the "constricted" criterion, .78.

Subjects

The subjects were 60 females. There were 20 adolescents, 20 late adolescents, and 20 adult women. Each age group had equal representations of college and noncollege women. The 20 adolescents were high school juniors, 10 of whom were commercial or general curriculum students. They were all unmarried and living at home. The noncollege late adolescents were unmar-

ried, employed full-time, and living at home. They were 19 and 20 years old. The college late adolescents were sophomores and juniors, unmarried and living away from home. The adult women all lived in the same highly homogenous suburban community that was the place of residence of the high school girls and the noncollege late adolescents. They were between 30 and 40 years old, married, and with children.

There are three subgroups differentiated by age and two differentiated by academic training, the academic training being a future goal for the college preparatory high school girls, a present process for the college girls, and a past experience for the college women. The subgroups did not differ significantly in intelligence or social class membership. Performance on the WAIS Similarities subtest was the measure of intelligence. The Similarities subtest was chosen because it is reported by its author to have the highest correlation of any subtest with full scale I.Q. ($r = .79$) across all age groups. It is also reported to be minimally influenced by education since the words involved are simple, widely used and known. This conclusion is supported by the subtest's high correlation with tests of abstract reasoning which do not involve language at all (Wechsler, 1944).

Social class membership was assessed by father's occupation in the manner described by Elizabeth M. Douvan (1951).

Results

A word should be said at this point about the partition of chi square, the method of statistical analysis chosen to evaluate the findings on the criteria. This method provided a way of scanning the data both for main effects attributable to age level or academic background and to interaction effects, determined by age and academic background. It gives an objective reason for singling out a single group, like

adults, for comparisons without being merely arbitrary or capitalizing on patterns of frequency in the data.

Such a scanning device is necessary since there is no specific *a priori* hypothesis which would justify direction of attention to a subgroup if we had made predictions about that subgroup. However, in using the partition of chi square, two important restrictions on the use of the technique are violated; the assumption of random ordering of variables and the stipulation of a minimum expected frequency of 5 for each cell. The latter stipulation is met for the chi square analysis of all main effects, age and academic level, but not for the interaction effects. In these cases, the categories are grouped so that they can be analyzed in a two-by-two contingency table to take advantage of the correction for continuity which it contains. This is done for all of the criteria on the college non-college comparisons, a two-category comparison to begin with. But it is

done for age level comparisons only when the relatively small observed frequencies demand it; so that instead of three age groups in this last case, there would be two: late adolescent and non-late adolescent, or adult and nonadult, or adolescent and nonadolescent. The problem of expected frequencies lower than five for more than 20% of the cells was a problem for interaction chi squares mainly. But, for lack of another appropriate statistical scanning device, the partition of chi square is used to indicate further subgroup comparisons. Further subgroup comparisons were made if the main effects achieve significance level of .10. A slightly more conservative level was set for interaction effects since they have no correction for continuity and since it is computed by subtracting the two main effects which are so corrected. The level of significance for interaction effects was required to be .05 before further interaction comparisons were made. The results are summarized in Table 1.

Table 1

Frequency with which Writing Style was Judged "Flamboyant", "Impersonal" and "Constricted" in Three Age Groups of College and Noncollege Women.

Age and Academic Groups	Flamboyant	Writing Style Impersonal	Constricted
Adolescents: College	7	2	4
Noncollege	5	2	6
Late Adolescent: College	1	6	8
Noncollege	1	8	5
Adult: College	6	3	5
Noncollege	3	2	7
	$X^2_{\text{age}} = 12.08,$ $p = .01$ $X^2_{\text{college}} = 1.11 \text{ N.S.}$ $X^2_{\text{age college}} = 1.04 \text{ N.S.}$	$X^2_{\text{age}} = 12.24$ $p = .01$ $X^2_{\text{college}} = .01 \text{ N.S.}$ $X^2_{\text{age college}} = 1.22, \text{ N.S.}$	$X^2_{\text{age}} = .67 \text{ N.S.}$ $X^2_{\text{college}} = .02 \text{ N.S.}$ $X^2_{\text{age college}} = 3.9 \text{ N.S.}$

Note.-N = 10 for each subgroup, except adolescent noncollege in which N = 9.

I. "Flamboyant" writing style. The X^2 for age level is highly significant, thus indicating further age level comparisons. The late adolescent frequencies were compared first with the adolescent frequencies and then with the adult frequencies, and evaluated with the Fisher Test of Exact Probabilities. The results are as follows: When adolescents are compared with late adolescents, $p = .002$; when adults are compared with late adolescents, $p = .015$; when adults are compared with adolescents, the results are nonsignificant. Late adolescents were judged to be "flamboyant" in writing style significantly less often than were the other two groups.

II. "Impersonal" writing style. The X^2 for age level is high enough to permit further age group comparisons: when late adolescents are compared with adolescents, $p = .008$; when late adolescents are compared with adults, $p = .005$; and when adolescents are compared with adults, the results are nonsignificant.

As in the case of the "flamboyant" writing style analysis, the late adolescent group contributes most heavily to the contrast. The adolescent and adult groups are the same in frequency and both of them are judged to be "impersonal" in writing style significantly less often than the late adolescent group.

III. "Constricted" writing style. There is no permission granted in this partition for any further comparisons. There is no basis for concluding that the groups differ in the frequency with which their writing style is judged to be "constricted."

In summary, late adolescent writing was judged to be "flamboyant" in style significantly less often than either adolescent or adult writing. Late adolescent writing was judged to be "impersonal" in style significantly more often than either adolescent or adult writing. The classification "constricted" did not distinguish any of the sub-

Discussion

The late adolescent group is remarkably homogenous in writing style. Even though the descriptions of writing style were developed to establish this homogeneity as fact, it is also true that we cannot characterize adolescent or adult writing; they are not as homogenous. The high school girls share the identity of "high school girls" and share an environment. Their writing style is more often flamboyant than anything else, but "flamboyant" is not a statistically reliable description for them as "impersonal" is for late adolescents.

The adult women who share the identity of "housewife-mother" and share an environment, do not even share a trend toward one writing style. They are as likely to be "flamboyant" as they are "impersonal" or "constricted." Yet, the late adolescents, who have little in common except their age, do share an expressive style, one characterized as distant, intellectualized, and controlled. There are perceptible differences in elegance of expression which the judges were instructed to ignore; The noncollege girl says awkwardly what the college girl says fluently. But the factors of distancing, intellectualization, and control are present in both instances.

Noncollege late adolescent: The painter wants to express the ways of life in days of our past. The farmer raised his food for his family and also as a means to support the family. The family is very close and they lend to each other in times that are sorrowful. The farmer sells his crops to educate his children and clothe them. In days of our time, the ways of life are different in so many ways. All food is bought out of our markets and people do not appreciate the many things in life like people did in the past. In the future, there will be a time that people will go back to the ways of life in our past. The population will reach such a high percentage, people will have to raise their foods for means of living and the country will once again be very important in the lives of people today."

College late adolescent: "The family has always gotten its substance from farming.

Their traditional ties are with their immediate neighbors and not with society in general. This girl has chosen to leave the traditional environment, become educated and get some sort of professional career. The others in the picture are not her parents. Rather, they are siblings who have chosen to stay within the traditional family boundaries of life. . ."

Whether they attend college or not, these late adolescents are, expressively speaking, very different from the high school girl although there is only a few years difference in age. Their stories are carefully anonymous while hers is often poignantly autobiographical:

High school junior, noncollege: Father's occupation: "My father died last summer and my mother is on Social Security." "Terry Taylor had a very enjoyable life until she lost her father by some accident with a farm machine. After this happened, it was impossible to talk to Terry. Her mother could not reach her at all. Everyone and anyone got in Terry's way. All she wanted to do was be alone. People at school were always trying to do a favor for her like getting boys to ask her out or asking her to parties. This just made her madder because they never did anything like this before her father passed away. One day Terry was on her way upstairs and her sister stopped to talk about a school dance coming up. All Terry could do was try to stop her sister from talking. After this uncontrollable want to kill made Terry think about what she was doing and she started to try to understand people and how she could get over this feeling of being liked only because of her unhappy home life."

To review briefly, we found that late adolescents as a group are distinguishable from the other two age groups in their writing style which is characterized as controlled, moderate in emotional tone, and heavily reliant on intellectualizing and distancing expressive techniques. They carefully budget their emotional investment in interpersonal, particularly intrafamilial interaction. They are very sensitive to any such situations which threaten to overwhelm their emotional autonomy and they take "rational" precautions to modify such

situations. The precautions involve generalization or a move to abstract impersonal considerations.

This suggests the emergence in late adolescence of a defensive posture peculiar to that developmental period. Late adolescents, for this time in their life at least, seem typically to rely on intellectualizing devices to help them to solve developmental problems. They are faced with the problems of diminishing their dependence on parents, of establishing their own value system, and of making themselves ready for mature psychological and physical intimacy, as Erikson (1956) has described intimacy, the important developmental task of young adulthood.

Intellectualizing defenses permit the correct identification of affect while controlling the intensity of affect and also give the ego the opportunity to study and master problems arising from intrafamilial situations with a clear if somewhat cold eye. For example, if the late adolescent can generalize his complaints against his own parents to a critique of the American middle-class family, he gains the freedom to make judgments about them and their values without arousing incapacitating guilt or frightened dependency.

It is also important to stress the efficacy of the TAT pictures in investigating this research question. This test is, of course, recognized to be most useful in eliciting expressions of defensive style and modes of coping with interpersonal problems. Perhaps it is not so widely recognized as useful in studying developmental differences. This study indicates that the potential of the TAT as a research tool can be exploited through an inductive research design in which the hypotheses grow out of the data rather than the more usual *a priori* approach. The inductive approach permits and facilitates the discovery of variables which might not have been apparent from one's prior use of this test instrument or from the clinical observations of other investigators.

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THE WAYTE METHOD FOR INVESTIGATING SELF-PERCEPTIONS

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Summary: The Who-Are-You Technique of investigating self-perceptions was extended into past, future, and ideal dimensions by additionally asking subjects *Who have you been*, *Who will you be*, and *Who would you like to be*. Who-Are-You-Time-Extension (WAYTE) comparisons of 232 prisoners, 55 Army Neuropsychiatric specialists, 77 college men, and 67 college women were made for twelve scoring categories and for contentment across time. Patterns of differences were noted and the WAYTE method was viewed as having potential for further self-concept research.

The method for the present study was derived from the Who-Are-You or W-A-Y technique, developed by J.F.T. Bugental and others over the past two decades (Bugental & Zelen, 1950; Bugental & Gunning, 1955; Bugental, 1964). The W-A-Y seeks to elicit self-perceptions of individuals by requesting three answers to the question "Who are you?" The responses are then divided into twelve categories which serve as the bases for between group comparisons. The rationale (Bugental & Zelen, 1950) is that ".....the question allows the client to structure his responses along lines most expressive of his own needs and most meaningfully related to his current situation."

Groups drawn from differing populations appear to differ on their response frequencies in W-A-Y categories. Differences have been found between college students, working men, and church organization women (Bugental & Zelen, 1950); between indigent, institutionalized aged Ss, non-institutionalized and independent aged Ss, and young, non-institutionalized Ss (Mason, 1954); between stutterers and non-stutterers (Zelen, Sheehan, & Bugental, 1954); between sociological groups corresponding to the response categories (Bugental and Gunning, 1955); between psychiatric, general medical, and orthopedic patients (Tolbor, 1957); and between alcoholics, schizophrenics, other neuropsychiatric

patients, and normals (Armstrong, Hambacher, and Overly, 1962).

In the present investigations a variety of self-perceptions along present, past, ideal, and future self dimensions were elicited by the use of a Who-Are-You-Time-Extension (WAYTE) method and a Contentment Quotient was derived from the WAYTE results.

METHOD

The subjects were composed of three main groups: first 232 male prisoners at the United States Disciplinary Barracks were tested at the time of initial confinement; 144 introductory psychology class students at Otero Junior College, 77 male and 67 female, participated as part of a routine class procedure; finally 55 neuropsychiatric (NP) technology students, all enlisted men at the Army Medical Field Service School, Fort Sam Houston, Texas, were given the task. The WAYTE method consisted of asking the subjects to give three answers to each of the following questions:

Who are you?

Who have you been?

Who would you like to be?

Who will you be?

¹ The Author is indebted to Dr. Richard Bendt for his contributions in formulating this study, to Dr. Robert Mixson and George Komaridis for their aid in data collection, and to Gabriel Didia and James Rutherford for assistance in scoring the data.

The answers represented present, past, ideal, and future self-perceptions respectively. As in the W-A-Y administration, the subjects were told that they could answer with words, phrases, or sentences, as long as they satisfied themselves that each question had been answered three times.

The standard twelve categories were used for classifying responses, with the group membership category subdivided into *Prisoner Group* and *Other Group* membership for the prisoner subjects and into *Student* and *Other Group* membership for the remaining subjects. Tolor's (1957) procedure of retitling the *Social*, *Unit*, and *Double* categories as *Status*, *Uniqueness*, and *Repetition*, respectively, was followed. Frequency and percentage of subjects falling in each scoring category were tabulated.

RESULTS

The percentages of responses in each category for each WAYTE question and for each of the groups studied are shown in Table 1. When Chi Square values were calculated for differences between present, past, ideal, and future frequencies for each category within each group of subjects, significant differences at the .05 level were present in all but the *Family*, *Uniqueness*, and *Other* categories. No calculations were made for the *Age* category because there were insufficient responses.

Relatively few of the Ss reported a present occupational identification in response to the Who-Are-You question, but over 25% identified this category for their ideal and future selves. By contrast, the *Prisoner/Student* special group categories occurred relatively frequently in response to the present question, less often in response to the past question, and quite infrequently in response to the ideal and future questions.

Differences between the groups of subjects may be observed by reading across the rows in Table 1. The prisoners responded with their names to all of the questions much more frequently

than did the other subjects. The female students responded to the future question with *Family* answers and the present question with *Sex* answers more often than did the other groups; these were primarily responses of "wife" and "mother," and "girl" and "woman," respectively.

Three of the scoring categories were combined to yield a self-evaluation measure. For each question the percentage occurrence of responses scored as *Status* and *Positive Affect* were added and the sum was divided by the percentage of *Negative Affect* responses. The result of this procedure indicated the proportion of positive and desirable responses to negative and undesirable ones, and may be termed a Contentment Quotient (CQ). CQs were in turn subtracted from each other in various combinations to elicit estimates of relative contentment at different times.

The CQs are presented in Table 2. The NP specialists had the highest contentment scores in response to the individual questions. When an Improvement Index was derived by subtracting the past from the present CQ, the largest contentment increase was noted with the prisoners. A measure of ambition was taken from the ideal-present CQ discrepancy, and the NP subjects were highest on this score. This ambition unit may be noted to be related to the ideal self-real self discrepancy concept which has been utilized in other forms as an indication of maladjustment.

The differences between the present and future CQs were used as indications of anticipated change. While virtually no change in contentment was anticipated in the future by the college women, the other groups, all of whom began with less present contentment, achieved markedly higher future than present CQs. The comparison of the ideal and future CQs yielded a pattern quite similar to that of the ideal-present comparison; that is, a very high discrepancy occurred, particularly for the NP specialists and the women students.

Table 1
Percentages of WAYTE Responses in
Scoring Categories for Four Samples

Scoring Category	Prisoners N=232			Neuropsychiatric Specialists: N=55			Otero Male Students: N=77			Otero Female Students: N=67		
	Present	Past	Ideal	Future	Present	Past	Ideal	Future	Present	Past	Ideal	Future
Name	62%	19%	16%	17%	13%	0%	0%	2%	16%	2%	0%	0%
Family	14	9	21	28	7	6	20	23	9	8	30	53
Status	2	2	22	7	0	4	22	9	0	2	31	2
Occupation	9	27	29	25	6	32	29	30	2	8	42	50
Age	5	6	1	0	7	32	0	0	10	45	6	4
Sex	22	7	4	7	29	6	0	8	54	13	5	7
Prison or Student Group	43	16	0	3	20	45	2	2	48	28	2	4
Other Group	45	37	29	29	64	24	13	6	54	9	5	9
Uniqueness	10	19	33	28	33	17	26	21	24	15	22	19
Positive Affect	13	27	56	55	13	26	83	74	18	27	68	59
Negative Affect	17	34	3	10	6	26	2	11	5	49	0	16
Other	21	20	13	22	37	43	24	32	13	22	12	9
Repetition	35	76	69	62	64	41	81	91	48	73	75	68

Note.-Percentage of responses in each column total approximately 300% because three answers were given for each question.

Table 2
Contentment Quotients from the WAYTE

Questions and Indices	Prisoners N=232	Neuropsychiatric Specialists N=55	Otero Male Students N=77	Otero Female Students N=67
Present	.88	2.35	2.08	4.00
Past	.85	1.14	.71	.58
Ideal	26.00	58.28	26.97	99.5 ^a 0
Future	6.20	7.35	4.27	3.72
<u>Indices:</u>				
Present-Past Discrepancy (Improvement Index)	.03	1.21	1.37	3.42
Ideal-Present Discrepancy (Ambition Index)	25.12	55.93	24.89	a
Future-Present Discrepancy (Anticipation Index)	5.32	5.00	2.21	-.28
Ideal-Future Discrepancy (Goal Evaluation Index)	19.80	50.93	22.68	a

^aThe Otero females did not give any Negative Affect responses to the ideal question and CQ's could not be calculated.

DISCUSSION

One of the purposes of this study was to investigate WAYTE self-descriptions by prisoners and other subjects. The WAYTE did indeed seem to yield more information than its parent method, the Who-Are-You technique, in the sense that widely and significantly varying response frequencies were found between the present, past, ideal, and future descriptions. In addition a number of differences were observed between the four groups of subjects.

Three of the response scoring categories that indicated positive or negative aspects of the subject's self-descriptions were combined into a Contentment Quotient (CQ). The CQ presented two problems in interpretation. First, when no *Negative Affect* responses were present, the CQ could not be calculated and thus the other derived measures were not available. Second, the very infrequent occurrence of *Nega-*

tive Affect responses on the ideal descriptions led to very high ideal CQs that were well out of proportion to the others noted.

The ideal description itself is in a different class from the three time-focused descriptions and comparisons should not be expected to be unequivocal. Even when comparisons are made, it can be argued that ideal descriptions should reflect considerably more contentment than other descriptions, and in fact if this did not occur, questions could be raised of whether the ideal descriptions truly indicated ideal states of being.

The construction of the CQ may require some changes. Certainly contentment indication could also have been elicited by simply subtracting the *Negative Affect* frequency from the others, or any of several other minor arithmetic steps. Nevertheless the comparison of prisoners, who are in a situation that leads to virtual universal discontent,

with non-confined subjects lends at least partial support to the use of the CQ. The prisoners were found to have the lowest contentment at the present, to have shown the least increase in contentment from past to present, and to anticipate the largest contentment increase.

One further combination of scoring categories could have been drawn from the data. There were two categories of individual responses, those of *Name* and *Uniqueness*, and three indicating group affiliation, those of *Family*, *Prisoner/Student Group*, and *Other Group* membership. A comparison of individual with group affiliation frequencies may well be a productive future dimension for evaluating WAYTE protocols.

SUMMARY

The Who-Are-You-Time-Extension (WAYTE) method of investigating self-perceptions was presented that retained ease of administration while increasing the content areas elicited by the original W-A-Y. Differences that were amenable to rational interpretation were obtained in comparisons of present, past, future, and ideal self-descriptions and contentment indices derived from these descriptions. This method of study, like its parent procedure, was viewed as being at a preliminary and

experimental stage with respect to usefulness as a clinical tool. Means for expanding its utility for self-concept research were discussed.

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THE ROSENZWEIG PICTURE-FRUSTRATION STUDY AS A MEASURE OF REACTION TO PERSONAL EVALUATION¹

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Summary: The P-F Study was given to three groups of incarcerated delinquents categorized as to parole evaluation status. The hypothesis tested was that those Ss who were being evaluated for parole would give significantly fewer extrapunitive (E) responses than matched Ss who were not being evaluated for parole. Statistical analyses of the data supported the hypothesis.

It was suggested that the probability of external reinforcement may be a basic determinant of responses to the P-F Study and perhaps to projective tests generally.

The Rosenzweig Picture-Frustration Study (P-F) appears to be inadequate for routine clinical use. Brown & Lacey (1954) found that the Study could not differentiate among 108 normal, chronic alcoholic and paranoid schizophrenic Ss. Furthermore, Lindzey & Goldwyn (1953) found no correlation between the Study and a word association measure of aggression, and Mehlman & Whiteman (1955) found no relationship between responses given to the test and responses made by the same Ss to actual situations similar to the P-F Cartoons.

Nevertheless, the P-F Study has been found useful if a different research strategy is employed. Mauser (1961) found that accountants and engineers who had taken the P-F Study as part of a job application procedure gave significantly fewer extrapunitive (E) responses than a matched group of Ss who had taken the test after they had been employed. It is probable that those Ss being evaluated assumed that administration of the P-F Study was part of the evaluation process and that a decision about them would be made on the basis of their responses. Under those conditions, the experimental Ss gave significantly fewer E responses in order to increase the probability of their being hired. The assumption underlying this explanation is that, within our culture,

Americans have been taught that restricting extrapunitive responses in personally evaluative situations increases the probability of being evaluated positively.

A similar explanation could account for findings indicating that incarcerated delinquents and adult prisoners give significantly fewer E responses than non-delinquents and college students respectively (Lindzey & Goldwyn, 1953; Fry, 1952). Rather than suggesting that incarcerated Ss are less extrapunitive than non-incarcerated Ss, it may be that incarceration increases the probability that Ss will expect any test situation to be personally evaluative (i.e., likely to elicit external reinforcement). Whether or not the particular test situation was actually personally evaluative probably is irrelevant since the usual circumstances under which Ss are incarcerated makes this expectation reasonable and not merely the result of paranoid ideation. On the other hand, nonincarcerated Ss are probably not as likely to expect that test responses will elicit external reinforcement.

The purpose of the present study was to test a further hypothesis derived from the general formulation that Ss restrict

¹The author wishes to express his appreciation to Mr. George Pickney, Director, Boys Training School, Lansing, Michigan, for his cooperation in this study.

Table 1

Comparisons of Mean *E* Responses for
Groups 1 and 2, 1 and 3, and 2 and 3.

Mean <i>E</i> Responses			
1	2	3	t
10.3	10.9	—	0.46
10.3	—	6.4	2.78*
—	10.9	6.4	2.81*

* $p < .05$ for two-tailed test

E responses in any situation likely to elicit external reinforcement. The hypothesis tested was that, among matched groups of incarcerated delinquents those *Ss* under parole consideration would give significantly fewer *E* responses than *Ss* not under consideration.

PROCEDURE

Ss were 30 inmates at Boys Training School in Lansing, Michigan. Group 1 consisted of 10 boys who had been at the school for at least two weeks but less than three months and who had not received any evaluation from the school. Group 2 consisted of 10 boys who had been at the school for more than three months but less than one year and who had not received a parole evaluation from the school. Group 3 consisted of 10 boys who had been at the school for more than one year but not more than 18 months and who had received a favorable preliminary parole evaluation from the school.

All *Ss* were matched on socioeconomic class, length of sentence, IQ, and age. Staff rankings of degree of maladjustment indicated no significant differences among the three groups of *Ss*. Mean IQ scores based on group administration of the California Test of Mental Maturity were 97, 94, and 99 for groups 1, 2, and 3 respectively. Mean CA's for groups, 1, 2, and 3 were 14.9, 15.1 and 15.4 respectively.

The P-F Study was administered by

the author to the three groups separately after assuring all *Ss* that confidentiality would be observed and that no member of the school staff would see any of the responses. The response sheets were then coded and an advanced graduate student in clinical psychology scored all responses as extrapunitive, intrapunitive or impunitive.²

RESULTS

An analysis of variance indicated that mean *E* responses differed significantly among the three groups ($F = 4.15$, $p < .05$). Table 1 indicates that while groups 1 and 2 did not differ significantly from each other in mean *E* responses, groups 1 and 3 and 2 and 3 respectively differed significantly from each other ($p < .05$).

Results support the hypothesis that incarcerated *Ss* under parole consideration would give significantly fewer *E* responses than matched *Ss* who were not being evaluated for parole.

DISCUSSION

On the basis of this study alone, it might be argued that the experimental *Ss* gave significantly fewer *E* responses than the control *Ss* because longer training school residence led to personality changes which were reflected in reduc-

²The author is grateful to Mrs. Rosamond Mitchell who served as scorer in this study.

ed *E* response frequency. However, the clinical studies cited above (Brown & Lacey, 1954; Lindzey & Goldwyn, 1953; and Mehlman & Whiteman, 1955) indicate that the P-F Study is not sensitive to such personality differences. Furthermore, while staff ranking is admittedly a rough control, the evidence would suggest that the three groups were at least minimally matched on degree of adjustment prior to testing. Finally, it should be remembered that groups 1 and 2 did not differ significantly from each other in judged adjustment or mean *E* responses although, on the average, Ss in group 2 had spent 6 months longer in the training school.

Studies referred to above offer a more parsimonious explanation of the present findings. While the data reported by Fry (1952) and Lindzey & Goldwyn (1953) suggested that incarceration, *per se*, leads to *E* response restriction, Mauser's (1961) data suggests that the probability of external reinforcement as a result of the test responses is a more generic variable in determining *E* response frequency.

In the present study, it appears likely that parole evaluation status created a situation for the experimental Ss wherein they expected that responses to the experimental test situation would contribute to the likelihood of their release *although they had been assured this was not the case*. It should be noted that although "expected" external reinforcement sometimes may be seen as an intra-psycho variable, in this study "expectation" is more likely the result of an external situation wherein the experimental Ss were under increased personal evaluation. While the data lends itself most parsimoniously to an explanation in terms of external reinforcement probabilities, the influence of intra-psycho variables cannot be dismissed. It is possible, for individual Ss, that social desirability or generalized constriction as a result of incarceration played some role in *E* response restriction.

Moreover, the question of whether

intra-psycho or external variables are generally more potent in determining *E* response frequency is left unanswered. It may be that non-incarcerated Ss who score significantly higher on social desirability than matched incarcerated Ss would give significantly fewer *E* responses. However, the present data suggest that, among Ss equally high on an intra-psycho variable such as social desirability, those Ss placed in a situation where the probability of external reinforcement was increased, would give significantly fewer *E* responses.

Such speculation leads to a transactional view of projective test-taking behavior. In such an analysis, *all* responses to projective tests are seen as a function of both S's intra-psycho structure and the probability of external reinforcement. When the probability of external reinforcement is low, S's responses are primarily a function of his intra-psycho structure. When the probability of external reinforcement is high, S's responses are primarily a function of demands of the external situation.

Further consideration suggests that when S responds to a projective test in a situation where the probability of external reinforcement is high, his responses could well be the result of an attempted match between the test's inferential strategy and S's understanding of the meaning of his responses.

For example, most Ss would not be expected to know how time perspective might be interpreted in a TAT story. As a result, Ss probably are not as likely to manipulate time perspective in order to increase the probability of being evaluated positively and, consequently, time perspective in the TAT may be more a function of intra-psycho than external variables. On the other hand, since extrapunitive responses have shared meanings, they are more likely than time perspective to be manipulated by S in order that he be evaluated positively. Thus, in addition to stimulus ambiguity and number of alternative responses, projective tests also should be evaluated on the basis of the degree

of meaning which can be attached to likely responses. Those responses high on meaning and therefore likely to be manipulated in situations where the probability of external reinforcement is high, probably are not generalized to different situations as readily as projective responses low on meaning.

If the foregoing transactional analysis is correct, more consideration needs to be given to the degree of meaning attached to projective response alternatives and to the probability of external reinforcement inherent in the test situation.

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RELIABILITY AND VALIDITY OF THE QUALITATIVE INTERPRETATION OF SENTENCE COMPLETIONS: A SINGLE CASE STATISTICAL STUDY

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Summary: Based on the sentence completions of a psychiatric patient, ratings were assigned on a number of personality dimensions by six clinical psychologists and 10 graduate students. Independent ratings by a psychologist and a psychiatrist who had interviewed the patient and had access to all the clinical background material, including case history, autobiography, and other tests, served as the criterion. A high degree of validity and interrater reliability was obtained by both clinicians and students with insignificant differences between them. Confidence in judgment was associated with extreme ratings but not with higher validity.

The problems of sentence completion reliability and validity are complicated by the fact that there is no unitary method or one generally accepted set of stems. Instead there is a considerable diversity of standard and custom-made tests with varying emphasis and directions as well as different scoring and interpretative procedures. Reliability has been studied either by split-half or the retest method or, more commonly and appropriately, by interjudge consistency. Validity criteria have varied from clinical judgments to personality inventories, from laboratory tests to recidivism rates. To further confound the issue raters have sometimes been untrained in psychology and at other times have been experienced clinicians, while the populations employed have ranged from students to schizophrenics, from social workers to delinquents, from flight cadets to weight-lifters (Gardner, 1966). The task of threading one's way through this maze of specifics in pursuit of firm conclusions about the status of the instrument can only be undertaken with trepidation.

Goldberg (1965, p. 813) has recently published the most comprehensive review of the literature. His conclusions are for the most part favorable to sentence completion in its various ramifications. However, many of the studies listed by him under validity have dealt

more with utility, such as predicting academic achievement or occupational proficiency, and are only tangentially concerned with validity as usually defined. Thus, poorly validated personality questionnaires are included in his listing of validity criteria as well as intelligence tests with which sentence completion would not be expected to correlate. Nevertheless, there were sufficient straightforward validity data of a positive nature that he could justifiably conclude: "The sentence completion is a valuable instrument in the assessment of personality that compares favorably to other standard instruments. A considerable, generally favorable, research literature tends to justify its wide clinical and research use."

The validity studies have ordinarily limited themselves to such single dimensions as adjustment or psychiatric status, occasionally with a very small number of variables, but almost never have attempted to deal with sentence completion in the broad global fashion in which it is commonly employed in practical settings. Not only in clinical but in counseling and other everyday uses psychologists eschew one-dimensional codings and ratings and attempt by qualitative analysis to derive as much in the way of dynamic and descriptive personallogical inferences as the method will yield.

The present study was designed as a heuristic demonstration of a method for assessing the value of sentence completion qualitative analysis by subjecting a single case to extensive statistical validation. While it is recognized that confining the research to a single case is a definite limitation, there is precedence in projective technique validity literature for single case research studies (*e.g.*, Ellis, 1953; Little and Shneidman, 1955). Besides evaluating the reliability and validity of qualitative judgments based on sentence completion, the present research had the additional objective of studying the relationships between the confidence of judges' ratings and the accuracy of the ratings, between confidence and the tendency to make extreme ratings, and between confidence and degree of clinical training and experience.

METHOD

Subject

The subject was a 21-year-old white male in attendance at a rehabilitation center for narcotic addicts. The status of the patient was unknown to the judges. Judges were given only minimal background information such as age, sex, race, marital status, number of siblings, etc.

Sixteen judges were used. Ten were psychology graduate students enrolled in a practicum in projective techniques. They were either matriculated for the master's degree in general psychology or had already received the degree. Several were functioning as counselors or junior psychologists. The remaining six judges were clinical psychologists with the doctorate, all of whom had familiarity with sentence completion.

Procedure

The patient's Sacks Sentence Completion Test (SSCT), consisting of 60 completed stems, was selected from the files of the narcotics rehabilitation center. The only criterion in selecting the

protocol was that the SSCT contain adequate material for evaluation.

After study of the protocol and the case history material a list of 24 questions was constructed in rating scale form. So that the influence of the case history material might be kept to a minimum in the derivation of the questions a list of 25 questions had been drawn up before selecting the protocol. Of these 20 were retained in the final form, suggesting that the questions had some degree of generality and were applicable to other patients.

The questions were organized in five categories:

1. Six questions on childhood and family relations (*e.g.*, childhood happiness, emotional atmosphere of the home, relations with parents and siblings).
2. Five questions on psychosexual development (*e.g.*, degree of adjustment, position on hetero-homosexual continuum, activity-passivity).
3. Four questions on attitudes (to people, self, authority, work).
4. Six questions on traits (*e.g.*, intelligence, introversion-extraversion, ambitiousness, inferiority-superiority feelings).
5. Three questions on adjustment (nature of, need for therapy, attitudes towards the future).

Each question was arranged in such a way that the judges could make one of six responses. The patient was either rated on a 5-point scale for each item or if the judge felt that there was insufficient evidence from SSCT he could so indicate. The judges were also asked to rate on a 5-point scale the degree of confidence which they had in each of their 24 ratings.

After completing the rating scale the judges were required to indicate the psychiatric diagnosis by choosing from a list of the 20 more common diagnostic categories.

The validity criterion consisted of having two experienced clinicians, one a psychologist and the other a psychiatrist, both of whom had extensively interviewed the patient, fill out the same form. Each criterion judge had full access to the patient's case history, a brief autobiography, and the results of a test battery which consisted of TAT, MMPI, Draw-a-Person, and the Mooney Problem Check List.

RESULTS

Data were analyzed under the three headings of reliability, validity, and confidence. For reliability and validity two complementary methods of statistical analysis were employed.

Reliability

One method of evaluation consisted of computing the mean scale point deviation of each clinician judge from every other clinician judge, of each student judge from every other student judge as well as the deviation between criterion judges. The mean scale point deviation for the clinicians was .53, for the students .62, and for the criterion judges .54. The range for the clinicians was .35 to .76 and for the students .26 to 1.00. The differences between the means were not significant.

The other method of assessing interjudge reliability was that of intraclass correlation (Guilford, 1954). The mean coefficient both for all clinician judges and all student judges when calculated separately was .88.

Validity

The method of mean scale point deviation was also employed to compare the ratings of clinicians and students with the ratings of the criterion judges. The mean deviation of the clinicians' ratings from the psychologist's ratings was .46 (range .32-.63) and from the psychiatrist's ratings .57 (range .43-.67). It should be noted that these magnitudes are very close to the mean deviation between the criterion judges.

The mean deviation of the students' ratings from the psychologist's ratings

was .54 (range .39-.82) and from the psychiatrist's ratings .76 (range .62-.90).

In order to determine whether there were any significant differences between the various judges, *t* tests were performed and are reported in Table 1. The data show that both clinicians and students were significantly less deviant from the psychologist than from the psychiatrist. There were, however, no significant differences between the ratings of clinicians and students for either the psychologist or the psychiatrist criterion.

The second method of assessing validity was Pearson *r*. It is relevant in this connection to consider the relationship between the ratings of the criterion judges. The correlation between the ratings of the psychologist and psychiatrist was .78 ($p < .01$).

The mean *r* of the clinicians with the psychologist was .82 ($p < .01$) (range .71-.96) and with the psychiatrist .73 ($p < .01$) (range .63-.86).

The mean *r* of the students with the psychologist was .65 ($p < .01$) (range .21-.67) and with the psychiatrist .41 ($p < .05$) (range .30-.67).

Several *t* tests were performed to find out if there were any significant differences between the various judges. The results, presented in Table 2, show that the ratings of the clinicians were not significantly more correlated with those of the psychiatrist, while the students were significantly more correlated with the former than the latter. The clinician and student ratings do not differ significantly from each other when the psychologist is the criterion but do when the psychiatrist is the criterion.

The results for psychiatric diagnosis showed a clear superiority of clinicians over students. Five of the six clinicians (83%) correctly identified the patient as a character disorder, while only three of nine students (33%) made the proper identification. The remaining student did not attempt a diagnosis.

Table 1
Summary of *t* Tests for Mean Point Deviations of Clinician and Student Ratings from Psychologist and Psychiatrist Ratings

Group	<i>t</i>	<i>p</i>
Psychologist-Clinicians vs. Psychologist-Students	.38	N.S.
Psychiatrist-Clinicians vs. Psychiatrist-Students	1.36	N.S.
Psychologist-Clinicians vs. Psychiatrist-Clinicians	4.10	.01
Psychologist-Students vs. Psychiatrist-Students	16.64	.01

Table 2
Summary of *t* Tests for Mean Correlations of Clinician and Student Ratings with Psychologist and Psychiatrist Ratings

Group	<i>t</i>	<i>p</i>
Psychologist-Clinicians vs. Psychologist-Students	1.68	N.S.
Psychiatrist-Clinicians vs. Psychiatrist-Students	5.54	.001
Psychologist-Clinicians vs. Psychiatrist-Clinicians	1.70	N.S.
Psychologist-Students vs. Psychiatrist-Students	38.24	.001

Confidence

The confidence with which judges made their ratings was correlated with three other variables. First, the relationship between confidence and extreme ratings was studied. Second, the differences between the amount of confidence shown by clinicians and students was examined. Finally, a determination was made of the relationship between confidence and accuracy or validity of ratings.

With regard to the first issue, a chi-square analysis revealed a relationship between confidence and extreme ratings (1, 5) which was significant for both groups at the .001 level (chi-square for clinicians 34.54, for students 46.63).

The mean of confidence ratings for clinicians was 2.4 (*SD*.3) and for students 2.1 (*SD*.3). This difference gave a *t* value of 1.24 which was not significant.

The relationship between confidence and accuracy was studied by dichotomizing the ratings into the categories of high confidence (1, 2) and low confidence (3, 4, 5). The 3 rating was included in the low confidence category because few raters used 4 and 5. Only those 13 items on which both criterion judges were in complete agreement were used in the comparison. The frequency figures are presented in Table 3. Analysis of these data shows that con-

fidence and accuracy were not significantly related for either group (chi-square for clinicians 3.92, for students .80).

DISCUSSION

Review of the sentence completion reliability literature indicates typical interrater coefficients in the .80s and .90s (Gardner, 1966; Goldberg, 1965). Most of these studies have confined themselves to a limited number of personality variables, frequently only one such as the popular Rotter adjustment index. The task of the present judges was more difficult, for they were required to make inferences from SSCT about many aspects of the patient's personality and life experiences. Despite the increased difficulty of the presenting task, both the scale deviation and correlational methods of analysis indicated a satisfactory degree of consistency for clinical and student judges. The more experienced clinical raters were not significantly more reliable than the students.

By either method of analysis the clinicians and students attained a relatively high degree of agreement with the criterion judges. In fact the correlations, particularly for the clinicians, were of the same order of magnitude as the correlation between the criterion judges. The results compare favorably with earlier studies where the predic-

Table 3
Comparison of Frequency of High and Low Confidence Ratings
of Clinicians and Students with Accuracy of Ratings

Deviation from criterion	Clinicians		Students	
	High	Low	High	Low
None	32	20	43	17
One step	13	3	29	15
Two steps	2	3	6	3
Three steps	0	0	1	0

tive efforts were less ambitious. While the clinicians tended to do somewhat better than the students the differences, because of the small *Ns* involved, usually did not reach statistical significance. The clinicians, however, were definitely superior on diagnosis. The inability to demonstrate a clear superiority of the psychologically more experienced and sophisticated judges over the less experienced judges is in line with a recently published sentence completion study by Walker and Linden (1967).

The finding that extreme ratings and a high degree of confidence in ratings are related is consistent with the results of Forer and Tolman (1952). In contrast, the finding that there is no consistent difference in confidence between clinicians and students is contrary to their conclusion. The final finding, that confidence and accuracy are not related, is also congruent with the literature (Efron, 1960; Forer and Tolman, 1952).

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A PICTORIAL ATTITUDE TEST FOR THE EVALUATION OF IN-SERVICE TRAINING PROGRAMS¹

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Summary: Two sets of pictures of hospital scenes were developed to permit assessment of attitudinal changes expected from training in the area of care and treatment of hospitalized mental patients. Response range is restricted; a scoring guide facilitates scoring. Interscorer reliability is .97. Equivalence of the two parallel forms appears adequate. A pilot study and cross validation suggest validity (significant mean differences between professional and nonprofessional hospital employees and between nonprofessional personnel and people in general). Use of the picture test in the assessment of attitude change in employees participating in a number of training programs indicates sensitivity and utility of the instrument.

INTRODUCTION

The psychometric instruments usually employed in the assessment of change which is expected or hoped for as a result of an in-service training program are often not sensitive enough to permit useful comparisons. They are either too general in scope to assess more narrowly defined, specific areas of interest, and/or too limited in the range they cover. Furthermore, these devices are for the most part standardized on populations which are unlike the sample. If purely projective instruments are used, the impressions are usually highly subjective and difficult to interpret across parameters. Many of the tests require a good deal of time, are often boring and are not conducive to establishing and maintaining a cooperative attitude in the subjects. Another disadvantage is the familiarity of many subjects with one or another of these devices, their aim or purpose, and the knowledge that many of them are used in diagnostic practice which in itself generates resistance. Some subjects consider the items too loaded or too searching, and attempt to answer them defensively, or resort to outright dissimulation. Most importantly, most instruments are not able to pick up small changes or changes occurring only in a narrowly defined attitudinal continuum.

Pictures seem to be particularly suited to be used as a method of interviewing, particularly if one wishes to elicit meaningful responses to a narrowly defined topic. Murray and his group of co-workers have made use of pictures in this sense and, taking the lead from his work, a large number of investigators have used pictorial devices for a variety of purposes (Wyatt, 1948; Blum, 1950; McClelland, Atkinson, Clark, & Lowell, 1953; Witkin, Lewis, Hertzman, Machover, Meissner, & Wagner, 1954; and Atkinson, 1958).

More recently, Pine & Levinson (1957) and Caudill (1958) have used pictures as "visual questions" in studies of mental hospital interactions. Caudill's pictures were developed for the purpose of sociographic investigations. He applied fruitfully the use of pictures to the investigation of interactions in a psychiatric hospital; his approach is more job-specific, less threatening, less transparent and permits more latitude with regard to response style and response content than is possible with the instruments usually applied. But Caudill's pictures were drawn with emphasis on role-interaction rather than on perceiving the hospital situation

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from an ideological or attitudinal point of view. They are in essence descriptive rather than evaluative. Because of our primary concern with assessment, we decided to develop a similar set of pictures which could be expected to elicit responses which reflect attitudes and attitudinal changes in the test taker, related to the care and treatment of mentally ill people in an institutional setting. It was also hoped that the picture series would permit the assessment of in-service training programs so far as they are primarily concerned with the communication and incorporation of certain values and attitudes which are held to be in accordance with modern concepts of patient-oriented treatment approaches. The development and the use of these pictures

(Napa Picture Series) is described in what follows.

THE PICTURES

Following Caudill's (1958) suggestion, hospital parameters were grouped into five topics: The hospital as physical reality (open door, locked ward, canteen, etc.), staff interactions, staff-patient interactions, patient-patient interactions and patient activities. On the average five pictures were designed for each of the five groups. The pictures were drawn according to specifications regarding content by an artist, Mr. Raymond Levesque, who succeeded in bringing ideas and suggestions to life. Naturalistic reproduction was not felt to be particularly desirable because of

Table 1
Description Of Pictures

S-Series	
S-1 ^a	Patients Working In The Laundry
S-2 ^a	In Front Of Canteen, Patients Alone & In Groups
S-3	Day Care Center (MO-FR, 9-4), At Closing Time
S-4 ^a	Ward-Team, Meeting In Nurses' Station
S-5 ^a	Electro-Shock Treatment
S-6 ^a	Doctor (Staff-Member) And Patient In Office
S-7	Employees' Dining Room
S-8 ^a	Staff Member And Nurse With Dormitory In Background
S-9 ^a	Woman And Man (Patients), Very Close
S-10 ^a	In Beauty Shop
S-11 ^a	OT On Locked Ward
S-12 ^a	Group Of Patients With A Patient In Foreground
S-13	Woman, Naked In Isolation Cell
T-Series	
T-1 ^a	Patients At Party
T-2	Patients Playing Pool
T-3 ^a	Patients At Gate
T-4 ^a	Group Therapy In Dormitory
T-5	Patient With Key In Front Of Door
T-6 ^a	Staff Member And Patient In Corridor
T-7 ^a	Nurses (Proper And Gowned) Taking A Break
T-8 ^a	Patient And Attendant
T-9	In Store, Patients Buying And Selling
T-10 ^a	Patients In Line In Rain
T-11 ^a	Patient Raking Leaves
T-12 ^a	In Dormitory Of Locked Ward
T-13 ^a	Woman, Naked, Hammering At Door Of Isolation Cell

^aDenotes pictures retained in abbreviated series.



Figure 1
Woman and Man (Patients), Very Close



Figure 2
In Beauty Shop



Figure 3
Patient and Attendant



Figure 4
Woman, Naked, Hammering At Door
Of Isolation Cell

our aim of wider applicability, greater projective utility, and a hunch expressed by Caudill that portrayal of "ideal" rather than "actual" conditions seemed to stimulate higher productivity. The pictures were drawn in black and white in such a way as to lend themselves readily to photographic reproduction. The pictures measure $7\frac{1}{4} \times 9\frac{1}{4}$ inches and are mounted on white cardboard measuring $8\frac{1}{2} \times 11$ inches. A total of twenty-six pictures (Table 1) was originally selected and divided into two sets of thirteen pictures each. Figures 1-4 are reproductions of four of the pictures.

The number of pictures has since been reduced to ten in each set. These abbreviated sets enable us to administer the test in forty-five minutes without loss of discrimination.

SCORING

To facilitate the comparison of responses it was necessary to develop a system of classification and quantification which would permit assessment along a continuum from custodial to patient-oriented attitudes. The goal was a scoring system which would be reliable, efficient, teachable, and above all, meaningful and relevant. A modification of Caudill's (1958) and Tomkins' (1947) scoring systems seemed to meet these requirements best. In this way four criterion groups were evolved:

1. Perceptive-apperceptive (Topic)
2. Sensitive-bland (Value)
3. Critical-conforming (Attitude)
4. Open-closed-in (Involvement)

To facilitate comparability and enhance reliability in evaluating test responses, it was considered necessary to limit the range of possible responses. This was achieved by formulating four open-ended questions to be answered for every picture. The four questions appeared on every answer sheet, with space provided for the answer to be written in; the answer sheets together with a face sheet containing biographical data were combined into a booklet.

These are the questions in the order of their appearance:

1. *What is this picture about?* (Topic)

This question aims at the degree of familiarity with the hospital and its functions. The response is considered to reflect breadth of experience as well as interest and involvement in one's job. This question permits also a comparison of response attitude since it is apparently the least threatening and demanding of the four because it does not ask the subject to reveal his feelings or thoughts.

2. *What are your feelings with regard to what this picture portrays?* (Value)

This question asks for a statement as to one's feelings about hospital management and treatment philosophy. It is probably the most searching question of the four, and demands that the subject tell about his biases and attitudes concerning particular aspects of life in a mental hospital. In other words, it touches on one's value system as it pertains to mental illness, and its treatment and management in a hospital setting.

3. *Suggest changes, if any, you would like to see carried out concerning anything you see in the picture.* (Attitude)

This question invites the subject to comment on the degree of agreement between his value system and situational reality as it is represented by the picture. Also, it probably gives an indication of the strength of a subject's conviction concerning a certain issue. Can he identify himself with the prevailing trends or does he feel strongly enough about his own experience and concern to think of different ways of accomplishing an objective?

4. *What thoughts does this picture bring to your mind?* (Involvement)

Here, the subject is asked to reveal his willingness to take issue, and his response to this question reflects probably his involvement, convictions, and sincerity.

The guiding principle in the evolution of a scoring system was the as-

sumption that "...changes in evaluation are always in the direction of increased congruity with the existing frame of reference" (Osgood and Tannenbaum, 1955). The frame of reference is the prevailing conception of patient-oriented care and treatment. The scoring is expected, therefore, to reflect a position on a continuum from custodial to patient-oriented attitudes. A three-step scale (0, 1, 2) was adopted, with failure to recognize the setting, custodial orientation, lack of concern for the patient's needs or for the patient as a person, and lack of involvement scoring in the 0 range, and the opposite tendencies receiving a score of 2. A score of 1 is assigned to responses which seem to fall in the middle or when the answer is ambiguous. While the narrow range of the scale limits the precision of assessment, it probably tends to enhance reliability. In order to facilitate agreement and consistency in scoring, a scoring guide was developed. This guide underwent several revisions which helped to increase reliability and made the scoring task easier and more teachable. In fact, we found it possible to train clerical assistants to do the scoring with very good interscorer reliability (See Reliability). Each protocol is scored for all responses to the four questions about all the pictures in the series. Accordingly, each picture yields four subscores (Topic, Value, Attitude, Involvement); the sum of all subscores for the entire series is the total score. A scoring form simplifies the arithmetical procedure. The highest possible total score is 104 for the full thirteen card series or 80 for the abbreviated ten card series. The raw scores can be transformed into Z-scores with a mean of 50 and a standard deviation of 10. When the abbreviated series is used the total score derived must be multiplied by 1.3; the corrected (raw) total score can then be used to find the respective Z-score.

In scoring, it is important to regard each subcategory (topic, value, attitude and involvement) as separate and not to allow the response to any of the

four questions to influence the scoring of any other response.

Forms S and T

From the beginning, a principal aim of this study was the development of two parallel forms. For this purpose the twenty-six pictures were grouped according to impressions about their similarity in picture pull and then divided into two sets of thirteen pictures. Care was taken to assure that the areas sampled were as similar as possible for both sets. The next step was to assemble the pictures (from both sets) in varying combinations so that each set, except the sets representing the series S & T, contained an approximately equal number of pictures from each series. In this way the pictures were divided into eight sets: set S, set T, and six groups containing six pictures of one of the series and seven of the other. These eight picture sets were labeled 1 to 8 and were consecutively assigned to the subjects. The sum of the four sub-scores for all pictures of the S series and, likewise, of the T series, for each subject, were added to give a part score for set S and a part score for T. Then a *t* test between scores achieved on S and on T was computed ($t = .32$), indicating that the difference between group means was not significant. As an additional measure, the split-half correlation (Guttman, 1945) between "S" pictures and "T" pictures in the six mixed series was computed, yielding $r = .86$, again arguing for an acceptable degree of equivalence between the two sets of pictures.

THE NORMATIVE SAMPLE

The subjects were selected randomly from a list of employees of Napa State Hospital who were actively involved in the care and/or treatment of patients. Care was taken to make the sampling as representative as possible although the size of the samples is sometimes small and somewhat uneven because of fluctuations in staffing among the various occupational categories. All subjects were given a choice to participate or to

Table 2

(Raw Score) Means and Standard Deviations for Various Occupational Categories

Prof. Group	N	Average		Topic		Value		Attitude		Involv.		Total Score	
		Age	Service	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Psychologists	7	37.0	4.0	21.3	2.4	14.6	3.2	8.7	5.5	14.1	4.2	58.7	8.6
Residents	4	47.0	4.0	18.5	1.5	12.8	2.3	10.0	3.6	15.2	3.9	56.5	7.1
Policy Makers	3	43.0	6.0	23.3	0.9	12.6	9.1	7.0	7.0	10.7	7.9	53.7	26.2
Psych. Nurses	7	47.0	9.0	16.7	4.4	12.1	8.6	10.9	5.0	12.3	3.9	52.0	16.6
Social Workers	9	43.0	4.5	18.3	5.1	13.2	5.6	7.3	7.8	11.8	4.2	50.5	17.9
Rehabilitation	5	37.5	4.0	15.6	4.2	8.4	6.8	7.4	4.2	11.0	3.6	42.4	15.6
Psych. Techn.	20	46.7	12.0	15.2	4.5	8.3	5.5	6.9	4.1	9.4	5.0	39.8	15.5
People-in-General Students	12	27.5	—	13.6	5.4	8.3	3.5	5.8	3.9	7.6	5.0	36.1	14.2
P. T. Trainees	20	30.0	—	6.4	4.0	4.9	3.4	3.3	2.2	5.2	2.5	19.9	8.7

decline, a factor which probably introduces a bias of some significance. Identification by name was not required. Among the subjects were seven psychologists, four residents in psychiatry, seven psychiatric nurses, nine psychiatric social workers, five rehabilitation workers, twenty psychiatric technicians, and thirty-two "people-in-general." The latter group was divided (see Table 2) into a group of psychiatric technician trainees ($N = 20$), who were tested on their first day of employment before they were oriented to the hospital, and a group of college students and ministerial interns ($N = 12$), none of whom had any acquaintance with a psychiatric hospital. Included in the sample were also three persons from the policy shaping branch of the administration. The total sample consisted of 87 subjects (61 men and 26 women). Table 2 contains a summary of the data for the entire sample.

The rank order of the mean total scores indicates that the instrument differentiates in the expected directions, with psychologists, a professional group which is less burdened with tradition and more adverse to managerial and administrative conservatism, scoring highest; and psychiatric technician trainees, which as a group probably reflect conservative views held in general by the public, scoring lowest. As a group, psychologists and residents in psychiatry show more homogeneity in their responses, probably reflecting communality and length of training. The only other notably lower standard deviation is the one of the psychiatric technician trainee group which, too, is probably related to greater similarity of background and views. All other groups show considerable variability.

Using a total score of 40 as a cut-off score in a 2×2 table, comparing the six professional and the three non-professional groups led to $X^2 = 18$, $df = 1$ which is significant ($p < .001$). A total score of 40 differentiates significantly also between the group of psychiatric technicians and the group of "people-in-general" including the 20 subjects

in the psychiatric trainee group and the 12 subjects in the student group in Table 2 ($X^2 = 5.51$, $df = 1$, $p < .02$).

The picture series, therefore, discriminates significantly between professional and non-professional groups as well as between psychiatric technicians and "people-in-general."

CROSS-VALIDATION

To determine whether the main results of the pilot study (hierarchical order of total scores among the occupational groups at the hospital and significant differences between the professional and the non-professional groups) would be confirmed by a study of a similar but different sample, an investigation identical to the original Napa State Hospital study was carried out at Stockton State Hospital which is approximately sixty miles southeast of Napa.² Included in the sample were fifty-one subjects from all professional categories and from the psychiatric technician group. The results are essentially in good agreement with the original study, again reflecting a hierarchical order in the scoring pattern although with some displacements in the middle of the range. The mean differences between the professional and the non-professional groups (using the "people-in-general" group data from the Napa sample) were again significant ($p = < .01$). These results not only support the findings of the original study but suggest that the discrimination is a function of the instrument. They also indicate the utility of the NPS for institutions of similar character.

Since the main findings of the cross-validation are in good agreement with the data from the Napa sample it was considered appropriate to combine the normative data from both investigations. Table 3 gives the mean total scores expressed in standard scores for the combined professional and non-profession-

² The author is indebted to Dr. Freeman Adams, Superintendent, to Dr. R.L. Griswold, Chief of Research, and to all staff members of the Stockton State Hospital for their gracious cooperation.

al samples. The distribution is in good agreement with our expectations based on the rationale of congruence between training and patient-oriented attitudes.

RELIABILITY

Scoring reliability between trained scorers is very high: Interscorer reliability between the author and a research assistant, a clinical psychology intern, (Marilyn T. Affelder, M.A.) was (for total scores) .97 (Pearson Product Moment); between the author and a trained clerical assistant (Harriet Goodman) (for total scores) .95 for one sample and .93 for another. Intrascorer reliability for the research assistant was .98 (interval: one month), for the author .94 (interval: two months), and the clerical assistant .95 (interval: two months). Interscorer reliabilities for the subtests range from $r = .91$ to $.95$, and intrascorer reliabilities from $.93$ to $.99$.

Stability of scores appears adequate considering the stimulus ambiguity. One group of 17 nurses who took part in a seminar on supervision showed no difference in achievement on the S and the T series: the group mean (raw score) for the S series was 36 and for the T series 38. The interval between pre- and posttest was five months. A group of 15 psychiatric technicians who served as controls in a research project (Stoer & Jones, 1965) achieved a mean total (raw) score of 28.9 in the pretest (series S) and 32.3 on the posttest (series T) after

an interval of six months, a difference which falls short of statistical significance. The data seem to indicate that, in the absence of interventions aimed at attitudinal change, scores tend to remain reasonably stable. Though the comparison is based on performance on both the S and the T series, the assumption of stability appears justified because of the established equivalence of the two forms.

VALIDITY

The underlying rationale of the Napa Picture Series is that attitudinal changes occurring in an institutional setting can be expected to be "in the direction of increased congruity with the existing frame of reference" (Osgood & Tannenbaum, 1955); the degree of congruity is reflected in the attitudes expressed in the response to the pictures which portray typical interactions within the existing institutional frame of reference. Since congruity can be expected to be greatest in members of groups which are primarily concerned and charged with the formulation of policies and objectives as well as with the implementation of such treatment and management concepts and goals, the hypothesis seems justified that scores on the NPS would distribute themselves on a continuum from high to low, corresponding to occupational levels. The actual distribution of scores follows exactly such a pattern, both in

Table 3
Group Means (Z-Scores) for Various Occupational Categories
(Napa & Stockton Sample Combined)

M = 50 S. D. = 10	
Category	Z-Score
Policy Makers (Administrators)	60
Psychologists	59
Psychiatric Social Workers	57
Physicians (incl. Psychiatrists & Residents)	53
Nurses	52
Rehabilitation Workers	51
Psychiatric Technicians	48
People-in-General	43

the Napa and the independent Stockton sample. The validity of the instrument is also demonstrated by its specificity: when applied to situations where attitude change is not the primary goal, the retests consistently fail to reflect a significant increase in scores while retest score values are generally higher whenever attitude change was an objective of the training procedure (See Application, below).

INTELLIGENCE, SEX, AND EDUCATION

Responses to a device such as the NPS could conceivably be influenced by intellectual ability, the sex, and the educational background of the test taker. In order to assess the influence of these factors, a group of 98 psychiatric technician trainees, all of whom took the Shipley-Hartford scale (Shipley, 1946) and the S series of the NPS, were divided into four sub-groups taking the median achievement on both instruments as cutting points. The resulting contingency table yielded $X^2 = 2.78$ ($df = 1$) which is not significant. Fifty-six trainees of this group finished their training and also took the T series of the NPS. A similar contingency table yielded $X^2 = .68$ ($df = 1$), again not significant. Correlating the MAs of this group of 56 subjects with their respective difference scores [difference score = total score (T series) - total score (S series)] yielded $r = -.085$, essentially indicating lack of relationship. These results suggest that no substantial relationship exists between intelligence and achievement on the NPS.

With regard to sex, a group of 56 psychiatric technician trainees consisting of 28 men and 28 women was divided into two sex groups and into a group achieving below and a group achieving above the median of the T series distribution. X^2 for this 2×2 table is 1.16 ($df = 1$), again not significant.

In contrast to intelligence and sex, education and professional training are positively correlated with performance on the NPS. This is, of course,

in agreement with the basic rationale and the hypothesis confirmed by the distribution of scores in the norm sample, i.e., that the responses to the pictures would fall along a continuum from high to low, corresponding to professional categories (Table 3). In addition, there is evidence derived from the psychiatric technician study already referred to (Stoer & Jones, 1965) that people with higher education tend to achieve higher scores on the NPS: a control group of fifteen psychiatric technicians who received salary increases on the basis of college credits scored as high on the *pretest* as the experimental (non-college) group *after* six months of class work largely concerned with attitude training. Another source of evidence is the achievement of the group of college students in the "people-in-general" group (total mean raw score = 36.1) while the technician trainee group in this sample achieved a mean total raw score of 19.9.

APPLICATION

The NPS has been used in a variety of programs and settings where attitudinal change was expected to occur as a result of a training program:

a. The NPS has been administered to all participants in the psychiatric technician training program at Napa State Hospital since 1963. A pretest and a posttest is given (interval approximately eight months). Pretests usually yield scores at the level of the psychiatric technician trainee group in our normative sample (Table 2). Posttests, as a rule, show a significant increase in scores, the scores approaching the level of the psychiatric technician group in the normative sample. However, a comparison of difference scores and drop-out rate failed to reveal a consistent relationship.

b. The NPS was also used with graduate nurses in training and with student nurses; the student nurses generally show significantly higher scores on the posttest, which seems to indicate change toward a more patient-directed orientation. The results from graduate

nurses vary with the type of training program: there is less change of scores in the records of nurses who participated in a program designed to augment or teach new skills than in nurses who took part in course work aimed at facilitating awareness and interpersonal effectiveness.

c. Stoer and Jones (1965) carried out a study using the NPS in connection with the evaluation of a special training program leading to merit salary increases for psychiatric technicians. Three groups of psychiatric technicians were compared: an experimental group and two control groups. The experimental group and the first control group were formed from a pool of more than 50 applicants who were reviewed by a Qualification Appraisal Panel and accepted for the advanced training program at Napa State Hospital in California. The only difference was that the experimental group began special class work immediately while the (first) control group was not scheduled for class work until six months later. The second control group (the college credit group) comprised psychiatric technicians who were granted the salary increase right away without any class work on the basis of previously earned college credits in related course work. All subjects were matched for sex, age and intelligence, and took the pretest at the same time. Table 4 summarizes the results: The college credit group scored significantly higher on the pretest than any of the other two groups. The experimen-

tal group showed a significant increase in attitude as measured with the NPS at the end of instructions while the first control group, retested at the time, did not show a significant increase but achieved scores on a second retest after finishing class work which came close to being statistically significant. These results seem to demonstrate an increase in treatment-sensitive attitudes subsequent to participation in the training course; no such increase occurred between the pretest and the first posttest of the first control group when no learning took place.

PREDICTION

Prediction regarding job performance in the field of psychiatric patient care is particularly tenuous because of the paucity of meaningful criteria. But our data indicate that prediction of performance and employment stability of psychiatric technician trainees on the basis of a cutting score of 20 on the pretest would be correct in about two-thirds of the cases while, surprisingly, prediction for the same group, but based on Shipley-Hartford MA scores, would have been no better than chance. While the data relating to prediction are neither conclusive nor impressive, they are suggestive enough to be reported. It is conceivable that NPS pretest scores could be combined with other measures into a multiple screen permitting more efficient selection of personnel.

Table 4
Means of Raw Scores for All 3 Groups
in the Advanced Psychiatric Technician In-Service Training Program

Group	N	First Test	Retest	Repeat-Retest
Experimental	13	29.9	38.3	None
Control	15	28.9	32.3	36.0 ^a
College-Credit	14	38.3	None	None

^aN = 10

THE NPS AS A PROJECTIVE INSTRUMENT

Our main concern so far has been the development of the Napa Picture Series as a device permitting the comparative evaluation of responses within a narrowly defined frame of reference. However, as is generally true for even such objective instruments as intelligence tests, the protocols often contain rich projective material which gives additional information about the test taker. Often, subjects are eager to find out "how they did on the test," meaning generally what information and clues with regard to the test taker's personality can be derived from their responses. Though no systematic study of the projective content of the protocols has been undertaken up to now, we have been able in a number of instances to spot problem cases long before difficulties became clinically apparent. In three instances serious disturbances which could have led to loss of employment and/or the loss of a good, trained employee could be avoided by recommending and securing psycho-therapeutic help. The usefulness of the NPS for such contingencies is, however, restricted by ethical consideration such as the confidential nature of the information contained in the test protocols, by the employment situation, and by the still experimental nature of the picture series.

There are also indications of the utility of the device for the investigation of patients' adjustment to their hospitalization. In some instances areas of frictions could be pinpointed which made it possible to change conditions so that the patient could be induced to cooperate in his treatment and change from a sullen, unwilling recipient of ministrations to a more willing and active participant.

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BOOK REVIEWS

Abt, Lawrence E., & Riess, Bernard F. (Eds). *Progress in clinical Psychology, Vol. VII*. New York: Grune & Stratton, 1966, 309 pp.

This volume deals with various significant developments in the field of clinical psychology, with particular emphasis on the theme of professional identity or role playing. To those of us accustomed to thinking of clinical psychology as a young profession, it comes as somewhat of a surprise to read in Dr. Stanford C. Eriksen's chapter on "Social Responsibility of Clinical Psychologists and the Press for Identity," that we have become middle-aged, set in our ways, and status conscious. We are, in Dr. Eriksen's opinion more concerned with what we are than with what we do as psychologists. Our identity must ultimately be defined in terms of our relationship to the social problems of our time. The clear implication in Dr. Eriksen's statement is, that unless we remain flexible enough in our self-concept to meet the changing needs of our time, rather than overconcerned with labels and categories, we may be in danger of losing our identity and our professional usefulness.

In a most illuminating chapter on "The Psychologist as an Agent for Scientific Approaches to Social Change," J. Douglas Grant, presents some exciting possibilities which await the clinician, if he will "get with" the social and technological changes taking place in the world today. In Grant's opinion, the computerized age, rather than consigning the clinical psychologist to oblivion, will leave him free for creative thinking and for the presentation of new ideas. He also presents some interesting new therapeutic models, with the emphasis on screening people in rather than screening them out, and with human development and prevention as the goal.

The book covers several other interesting and related topics, which include Manpower and Training, Tests and Measurements, The Clinical Psychologist as Mental Health Consultant, Clinical Psychology and Religion, Sociocultural Aspects of Psychotherapy, Mental Health in Higher Education, Behavior Therapy, Humanistic Psychology, as well as the status of clinical psychology in other lands, such as Greece, Scandinavia, Yugoslavia, France, and Czechoslovakia.

The chapters are on the whole, well written, knowledgeable, and one is impressed with the high level of sophistication of most of these presentations.

As one who is trained in both diagnostic testing and psychotherapy, this reviewer wishes to take issue with the editors and the authors of the chapter entitled "Psychological Tests in Clinical

Practice," on their rejection of the usefulness and validity of diagnostic testing. Drs. Abt and Riess and Drs. Eron and Chertkoff base their negative point of view on the grounds of diminishing interest in testing among clinicians, disappointment with its effectiveness and results and lack of sufficient scientific validity. All of which can and has been said about psychotherapy. Must one discard psychotherapy because it has not lived up to expectations?

This writer's objection to the point of view expressed in this volume is twofold. It is a rejection of a body techniques which can yield meaningful information, and because it represents an abandonment of the scientific method in psychology, in favor of the "art" of psychotherapy. The editors state, that while clinical psychology is a science, there are those who perceive it and practice it as an art. In our opinion, this dichotomy is an artificial one.

There is an art to the application of any science, and there is a science to art. In music, as in the other arts, there is a body of knowledge, skills and techniques which must be mastered before one can give expression to one's unique talents. It is this very difference between the structure and discipline of the creative artist and the autistic constructs of the schizophrenic "art" which is so clearly differentiated on the Rorschach Test, against which most of the negative criticism is directed by Drs. Eron and Chertkoff. Indeed many of the statements and interpretations offered by the authors of this chapter would be unacceptable to most experienced diagnosticians. An example, is the following categorical statement; "Clinicians cling tenaciously to this technique in the face of overwhelming research evidence that it is unreliable and invalid."

Some twenty years experience with the Rorschach test compels this reviewer to state that she has found it invaluable as a diagnostic technique, which enables her to formulate and plan a course of therapy suitable to a particular patient, and to rule out other therapeutic approaches which might be ineffective or destructive.

As an example of the unreliability of the Rorschach, Drs. Eron and Chertkoff cite a Ph.D. dissertation which was designed to test the effectiveness of the Rorschach in measuring personality change as a result of psychotherapy. The author of this dissertation is quoted as concluding that "perceptual type variables can't predict because they measure structure not function." One is hard pressed to see the logic in this statement. If the Rorschach Test measures basic personality structure with such accuracy and consistency, is it not a most valuable technique for research in psychotherapy?

Does not the lack of basic change in personality and psychopathology as revealed in the Rorschach, tell us something meaningful about the limitations of our present therapeutic techniques? Drs. Eron and Chertkoff's own conclusion on the results of the above dissertation, is that "they (the perceptual variables) measure nothing. . . ."

Obviously, no human communication means "nothing." When a patient tells us something we are "stuck" with this information, and we must do our best to understand its meaning. To say that it means "nothing," is in this writer's opinion, irresponsible.

The chapter on testing is replete with similar statements which simply do not hold up, and whose logic is at times incomprehensible. The authors state that only the content is meaningful, and it is on the basis of content that a diagnosis of a thinking disorder can be made. Every clinician who is experienced with the Rorschach is familiar with the "correctness" of much of the content of many paranoid patients. It is the determinants by means of which one becomes aware of the existent thinking pathology. For instance, what is more innocuous than the content of a butterfly, or a bat. However, if this bat is transposed on some obscure area of the blot, where it is not normally seen, then this tells us much about the patient's paranoid fear and distrust of reality.

In the area of intelligence testing, the monumental study of Terman and his associates, which was able to predict with a high degree of reliability, intellectual and academic achievement over a period of twenty-five years, is, in this writer's opinion, a very important contribution to the science of Man.

This reviewer subscribes to the humanistic point of view that to understand a human being in all his uniqueness, one must experience him in a creative way. To assume such understanding on the basis of tests alone, is presumptuous, and may even constitute an indignity to an individual who comes to us for help. But man is so complex, and our knowledge so limited that we ought not to reject any source, which can shed some light or contribute something meaningful. To know a man's intellectual potential, or the nature and dynamics of his adaptation to reality and to his own life situation is helpful. If the available techniques are inadequate then they ought to be refined, rather than discarded.

On the whole, this volume belongs on the recommended reading list for clinicians, educators, and curriculum planners in the field of clinical psychology.

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Britt, Stuart Henderson. *Consumer Behavior and the Behavioral Sciences, Theories and Applications*, New York: John Wiley and Sons, 1966, xxxii 592 pp.

The fields of marketing and motivation research have attracted the attention of psychologists since the emergence of these areas as legitimate occupations for "applied" social scientists. Little had been done, however, with a few exceptions, from the field of economical psychology, to build a sound body of theory. Nor has a comprehensive source book been provided where the basic foundations of the fields could be made available with a minimum of effort and where an unbiased overall view of contrasting and complementary approaches and techniques would be offered to the reader. Britt's book fills this gap and provides an authoritative volume where 348 readings by 299 different specialists are carefully selected, edited, shortened and presented within the "connective tissue" of an eclectic and informative approach. This book will be recommended reading to all the social scientists in the field. For the specialists in projective techniques, Chapter 3: "Fact finding about consumers" provides a section where research techniques are discussed. In the field of motivation research, the testing instruments are often tailor-made and *ad hoc* for specific projects, and frequently little is known about their validity and reliability. Britt provides a balanced discussion of these problems and offers a variety of field studies which exemplify the pitfalls which may await the beginning practitioner in the area. The different disciplines which integrate into an interdisciplinary approach to marketing are carefully represented. The book ends with a good reference list and a comprehensive bibliography.

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Chapman, J. Dudley, *The Feminine Mind and Body*, New York: Philosophical Library, 1967, 325pp, \$6.95.

Dr. Chapman, an osteopathic physician, is neither a psychiatrist nor psychologist. His book is based on his experience as an obstetrician and gynecologist. He points out that the members of his profession have a special closeness to women that no other profession can claim. He describes the obstetrician as their confessor, their consultant in terms of their habits, such as their diet and their activities including virtually their every function. As Dr. Chapman indicates, he functions as their mother and father all in one and sometimes it appears that he is their phantom lover as well.

The author leans heavily upon Freudian concepts and existential thought and as he states, tries to "explain the whole thing by way of cybernetics." He sees two great threats to a woman—sex and death—and dwells a good deal on factors of sexual misconceptions. As he points out, the obstetrician and gynecologist deals primarily with the sexual or reproductive apparatus, the area where sexual conflicts might be expressed. Death is treated only in terms of the fear it engenders.

The book is divided into three major divisions, the psycho-sexual development of women, the sexually mature years and its problems, and the approach to the menopausal period of life. As Dr. Chapman sees it, little girls are made of something more than sugar and spice and everything nice. He sees them as "prepared and guided from the very beginning in her feminine role"; whereas, boys are first influenced by females prior to birth and for a number of subsequent years and only later must develop their masculine tendencies. He draws heavily upon Freud's theory in explaining sexual curiosity, play and pleasure.

Dr. Chapman has introduced no new concepts or revolutionary ideas. He has drawn on many sources for his presentation with each chapter's material followed by a bibliography. Thus, while he indicates that other authors have contributed to that which has been presented in the chapter, he does not specifically identify his sources.

The range of topics is varied and should stimulate anyone who is attracted by the title. Dr. Chapman skims from an acceptance of menstruation as a normal body function of women and his efforts at destroying the myth about it being dirty to the beauty of the human anatomy as clean and wholesome. His discussion of feminine love reveals that what he calls "authentic love" means the need "to" love, rather than the need "to be loved". Without indicating whether women have a greater reservoir of authentic love than do men, in the same chapter he quickly shifts to a statement that women have more sexual inhibitions than do males.

Continuing on through the maze of femininity, Dr. Chapman discusses feminine masochism, homosexuality, the orgasm, masturbation, marriage and mates, and quite naturally for an obstetrician and gynecologist, mating.

He discusses the menopause with its fear of lack of womanhood, approaching death, bleakness and that of rejection. He ends his "expose" of the feminine mind and body with four steps toward seeking a better adjustment in life and marriage. These he lists as uniqueness or being different, finding love, being creative, and establishing goals which will eliminate the unrealistic fear of death.

Dr. Chapman is directing his book at women. Using the Socratic admonition "Know Thyself,"

we hope that many women will study the material in this book. Perhaps the greatest weakness of the book lies in the attempt to include too much, such as the section on Cybernetics. However it is generally a readable and interesting guide for the anxious woman—and often bewildered mate.

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Megargee, Edwin I. (Ed.) *Research in Clinical Assessment*. New York: Harper & Row, 1966. \$14.75. xv + 702 pp.

The editor of this anthology is on the faculty of the University of Texas, having received his doctorate in clinical psychology from the University of California at Berkeley. He has been a knowledgeable and frequent contributor to the literature in clinical testing and assessment, with special reference to the area of personality inventory research.

Megargee's purpose in assembling this book was to present a volume which could serve both as a text for students and as an aid to the clinician. In this he has succeeded, even though reading this lengthy volume of more than 700 pages would present formidable inroads on the time of a busy practitioner. As a supplementary collection of readings for testing and assessment courses, however, this book could be quite useful.

The 58 fairly recent papers (half have appeared in the American, Canadian, and British literature since 1959) are presented in three broad frames of reference. The initial section deals with general research problems and the validation of clinical assessment methods, including such important issues as the influence of base rates upon prediction, the criterion problem, and the utility of the construct validity concept. Here are found some of the benchmarks by which the reader may judge the adequacy and relevance of the specific validation studies presented later in the book.

The second—and largest—section is devoted to an examination of the validity of the most widely used personality tests, including both projective and structured techniques. The essential difference between these two types of assessment devices is conceptualized as being the freedom of the subject to formulate his own response or to limit himself to selecting a response from among several alternatives made available by the examiner. Otherwise, as Megargee states, these two methods are similar in that both utilize more or less ambiguous stimuli and both require a not inconsiderable amount of interpretation before behavior can be predicted. The structured tests which are discussed focus upon the personality inventories, and clinical

psychologists should be familiar with the issues raised in attempting to validate these instruments, especially since there is a current public concern that their use in the assessment process may represent an "invasion of privacy." In this regard, Hathaway's thoughtful and well-written article, "MMPI: Professional Use by Professional People," merits as careful reading today as when originally published in the 1964 *American Psychologist*. The presently popular professional interest in response sets and biases receives due attention by the inclusion of several papers by Edwards, Messick and Jackson, Rorer and Goldberg, and Megargee, among others.

Of particular interest to readers of this Journal are the well-chosen articles on projective techniques, many of which have not been heretofore available outside of the periodicals in which they were originally published. Special problems of this type of assessment aid are illustrated by pertinent articles, laden with suggestions for further research, which focus upon such issues as the determinants of projective response, the problem of classifying a response once it has been obtained, the difficulty in interpreting a given response, and the uncertainty as to what constitutes adequate research in the area of projective test validation.

The section dealing with the validation of projective drawings includes only the one paper by Swensen which originally appeared in the 1957 *Psychological Bulletin* and which has since been reprinted in several previous anthologies. Since Sundberg's recent survey of national testing practices revealed that this technique is the second most widely used assessment method, it is disappointing that projective drawings did not receive more attention. Articles on the Rorschach and TAT were well-selected and were relative to the issues which their authors sought to illustrate and study.

The third section is concerned with the integration of clinical data in the assessment process. The five studies presented in the chapter dealing with the validity of psychological evaluation using multiple sources of data are organized in terms of Meehl's criteria for the usefulness of an assessment technique, which are themselves discussed in a paper contained elsewhere in the book. The minimal requirement is said to be that the technique provide valid and semantically uncluttered statements; the second level of usefulness is when the assessment conveys data which are not only valid but also are not readily available from other sources; and the final level of usefulness is attained when a method is able to provide unique and accurate data early enough so that it can influence the way in which a subject is to be handled. The papers directed to these points, again, are well-chosen. The classic article by Holtzman and Sells on the prediction of success in flight training is especially welcomed, since it indicates that there

may be a certain degree of individual "pathology" which actually enhances success in that particular task. When one deals exclusively with deviant or disturbed behavior, it may frequently happen that the clinician loses sight of the fact that "disordered" persons can still operate effectively in certain areas. It has been this reviewer's observation, for example, that experts in certain exotic languages are rather peculiar people as a group, while linguists in the more common languages are generally not as unusual in their values and styles of living. Indeed, some of the exotic linguists would surely be classified as "sick" by many psychologists; yet, they were performing quite effectively on their jobs. There is a need for more research on the proper weighting of so-called pathological signs, and more effort should be given to building up in the published literature assessment and testing norms of personality patterns to be found in large groups of normal subjects functioning effectively in the community.

The final chapter is titled, "The Clinical Psychologist: Betty Crocker or Escoffier — Mechanical or Creative Combination of Clinical Data?" It deals with the Man vs. Machine approach to personality assessment. Present-day actuarial methods of analysis based upon highspeed electronic computers are becoming increasingly sophisticated, and the accuracy and speed of test processing has become greatly enhanced as applied to both personality inventories and inkblot tests. Actually, only a beginning has been made, and the near future should see a significant breakthrough in the philosophy and technology of mass psychological appraisal. Meehl gives the Betty Crocker approach (i.e., assessment as an actuarial method) in the reprinting of his 1955 address to the Midwestern Psychological Association, while Holt and Holtzman ably present the Escoffier (i.e., assessment as a clinical art) viewpoint. The issues involved are vital to the future of clinical psychology, and every psycho-diagnostician should be familiar with the set of papers dealing with this topic which are available in this book. The resolution of the questions raised will, this reviewer believes, ultimately entail the marriage of Miss Crocker and Monsieur Escoffier.

In summary, this book is worth reading through, and not only because there is something in it for nearly everyone who has an interest in clinical assessment. The choice of selections has been good, and the editor's own comments which precede each section are worthwhile in their own right.

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Murstein, B.I. (Ed). *Handbook of Projective Techniques*. New York: Basic Books, 1965, 934 pp., \$12.50.

This is an important book for anyone concerned with projective techniques, personality assessment, and related areas. Murstein has reprinted articles related to five widely used projective techniques: the Rorschach, the Thematic Apperception Test, the Draw-A-Person Test, the Bender Gestalt, and the Sentence Completion Test. In addition, a special section covers "General and Theoretical Studies." The editor has taken his task seriously. Usually, editors (a) complain of how hard it is to select representative articles; and (b) write inane introductions to each article, saying nothing that is not said in the article itself. While Murstein does write of how difficult it was to choose articles, he most certainly does not write inane introductions. His brief comments before the papers are often sharply critical of the study to be reported, thereby qualifying the conclusions reached by the researchers. This is important because many studies contain some weakness in design which makes it impossible to be as sure of the interpretations as the authors would have the reader believe.

The value of this book can be seen by some of the directions in which the reader is pointed. The old notion of projective techniques as x-rays of the soul is blasted down by Murstein and some of the research. It is pointed out that "card pull" rather than basic personality may influence the response that the subject gives. For example, a particular TAT card may tend to elicit hostile stories from anyone; the fact that your patient gives a hostile story in response to this card does not necessarily mean he is a hostile individual. On the contrary, he is responding as most people respond.

Murstein is particularly at odds with those who think that projective techniques will tell you all about the patient, even when he tries to conceal himself. The rationale of this position is that the patient must draw upon his own frame of reference in fabricating a response, so he tells you something even when he is defensive. Without going into the particular evidence, it would appear that subjects can realize that the test is a threat, and can further respond in defensive ways which may subvert the aims of the tester. A very bland response by a defensive subject may tell you little other than the obvious point that the person taking the test did not want to reveal too much about himself. As Meltzoff (Ch. 51) points out, the mental set which the person has about the test influences the "tone" of his response; subjects were able to manipulate their responses so as to appear either adjusted or maladjusted.

With the exception of a few general and theoretical articles, the book is primarily made up of em-

pirical studies. Several are concerned with the issue of the stimulus properties of the test in question. That is, instead of jumping into a discussion of interpretation, several researchers have concerned themselves with the stimulus material itself, asking what it is about the particular test which tends to elicit certain responses. This kind of research is important and has surely been overlooked by those who have felt that projective techniques were uniformly vague tests which allowed subjects to project their own meaning onto the test stimuli. To a surprisingly great extent, many projective tests are not so vague, as several of the studies suggest.

Although it is important to consider the stimulus properties of projective instruments, it is also important to deal with the more traditional area of interpretation. Here we find what is perhaps the greatest weakness of this handbook. Especially in Part II: Rorschach there is really only one chapter that is primarily concerned with interpretation: Ch. 20 by Murstein. This omission of what most projective test users would probably consider the major value of projective techniques is a serious limitation to an otherwise fine book. Perhaps the research emphasis partly dictated the under-emphasis on interpretation, since it is much easier to do a good study on stimulus properties than on interpretations. Nevertheless, only one article on Rorschach interpretation is rather miserly.

The Sentence Completion Test (or more accurately, the Sentence Completion Method, since there are several brands) is "...probably the most valid of all the projective techniques..." (p.777). One reason is that the sentence completion methods seek to predict, on most occasions, overt behavior. Thus, we have one measure of overt behavior, the subject's sentence completions, being related to another measure of overt behavior, perhaps adjustment vs. maladjustment. The review of sentence completion methods by Goldberg (Ch. 49) brings together a large body of research bearing on this technique.

It is apparent that the sophistication of the research may determine whether or not significant results are found. While the preceding statement is a truism, it seems particularly appropriate for projective techniques, where the use of poor criteria or faulty experimental designs has frequently led, one suspects, to the many negative results reported in the research literature. Lesser's frequently cited study (Ch. 34) on the importance of maternal response in assessing the relationship between overt and fantasy aggression indicates how complex the matter is, and points out how a less-sophisticated study would have produced negative results. Additionally, the brief study by Griffith and Peyman (Ch. 39) suggests that positive results may be obtained when behavioral criteria are employed

as the standard, instead of diagnostic labels. Since so much of the research on projective instruments has employed psychiatric diagnosis as the criterion, it is perhaps not too surprising that more fruitful results have failed to emerge.

For some strange reason, the sources from which the articles are reprinted are listed on two pages near the end of the book, instead of at the beginning of each paper. This means that the reader has to thumb to the back of the book every time he wishes to find when and where an article first appeared. Such thumbing through a large book is annoying, and will often mean that the reader will simply avoid looking up the reference. This could have been avoided if the reference for the papers had been printed at the beginning of each paper.

All in all, this is an excellent and important book. Unless someone has read most of the papers in this handbook, he is likely to learn a great deal about projective techniques. It is apparent that all the relevant research has not been done, and the future therefore should see many more studies carried out. Murstein's handbook presents the reader with a very good view of the current status of research on projective methods, and thereby enables the reader to separate fact from fancy in many important areas.

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Saarinén, Thomas F. *Perception of the Drought Hazard on the Great Plains*. Chicago: Department of Geography, University of Chicago; 1966, 183 pp.

In recent years geographers increasingly have become involved in studies examining man's perception of the environment in which he lives in an effort to better understand man-milieu relationships. In this vein students and staff of the Department of Geography of the University of Chicago have carried out a series of studies dealing with problems associated with the perception of hazards in the resource management of flood plains. Saarinén's work, an extension of those studies, is concerned with the perception of drought as a factor in resource management among farmers in the Great Plains area.

The study utilizes a sample of farmers from six selected areas in Oklahoma, Kansas, Nebraska, and Colorado and attempts to analyze their attitudes toward drought.

An extensive questionnaire and standard TAT cards combined with a series of pictures of scenes depicting severe drought conditions in the Great Plains were the chief research tools used. A selected bibliography covers drought and climatology, the Great Plains and other semi-arid areas, farm management practices in drought areas, societal and personality adjustments in adapting to drought, personality theory and projective techniques, theoretical statements regarding perception and man-milieu studies from psychology, psychoanalysis, developmental psychology, anthropology, and social psychology and empirical studies of perception. Responses to questions in the interviews were correlated where possible with climatic data to test perception of drought as a hazard. Conclusions supported by the data include: 1) Farmers in the areas of least average precipitation were more perceptive of drought than those in more humid areas; 2) Farmers with more experience (except those of most advanced age) were more perceptive than those of less experience; 3) Farmers were prone to overestimate yields and the frequency of good years and to underestimate the frequency of drought; 4) Responses to TAT cards and supplemental pictures suggest a conflict regarding achievement in that the heroes of the stories elicited are most often pictured either as not wanting to achieve under pressure or of wanting to achieve in the face of difficult circumstances. Saarinén sees a possible indication of the experience of uncertainty of weather conditions exerting an influence on the farmer's responses to the question of achievement.

The marginal character of Great Plains climates requires an optimism on the part of its occupants. The theme of the perception by farmers of drought as a hazard in the Great Plains is summed up by one respondent in the remark that "...that is the biggest next year country in the world out there."

Studies of this sort which deal with a problem at the cutting edge between the disciplines of psychology and geography point toward a direction that may result in a better understanding of the relationship between man and his milieu. The book might very well be used as an adjunct in courses in anthropology or in personality and social psychology as well as for selected geography courses.

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Announcements

Thanks to Dr. Tolor...

The August, 1967 issue of the Journal stated on page 100 that Selma Landisberg would participate in the symposium, CURRENT STATUS OF SOME PROJECTIVE TECHNIQUES, at the Society's recent annual meeting in Washington. Actually, Miss Landisberg was not able to participate and Dr. Alexander Tolor, Director of the Institute for Human Development and Associate Professor of Psychology at Fairfield University, kindly stepped in and gave the presentation on graphomotor techniques.

Board Meeting Minutes Society for Projective Techniques and Personality Assessment, Inc.

The fall Board Meeting of the Society for Projective Techniques and Personality Assessment was held Monday evening, September 4, 1967, at the Washington-Hilton Hotel, Washington, D.C. Members present were: Martin Mayman, President, Walter Klopfer, Barry Molish, Kenneth Little, Earl Taulbee, Gordon Filmer-Bennett, Norman Farberow and Mary Haworth.

The usual reports from Committees were read and accepted. New officers voted upon in the spring election were announced as follows:

President Elect -- Kenneth Little; Treasurer -- Earl Taulbee; Western Representative -- Norman Farberow. It was agreed upon at the spring Board Meeting that the offices of Secretary and Membership Chairman should be combined. It was decided to wait to initiate this change until the time of the next election of a Secretary. It was also recommended that the Eastern and Western Representatives should be given the responsibility for establishing regional activities such as symposia, paper-reading sessions for graduate students, and training workshops.

The Treasurer's report indicated that the Society's financial affairs are quite satisfactory. The Membership committee has approved seven members for Fellow status this past year. Seventeen new members have been ac-

cepted and nine associates. The Program committee reported four symposia presented at the 1967 APA annual meeting, with joint sponsorship with Divisions 5, 7 and 12. The Journal editor reported that there is an average of only five months between receipt of manuscripts and their publication, and that issues of the Journal are in the mail on or before the first day of the month of issue. A handbook of procedures is being assembled which will indicate the duties of each office and standing committee.

Two members of the Board, Martin Mayman and Walter Klopfer, were invited to attend the initial meeting of the newly formed Interassociation Committee on Test Review. This group includes representation of societies, divisions, and journals concerned with the adequate dissemination of information about new, and revised, tests. The group hopes to coordinate the reviewing process to insure adequate and appropriate review and evaluation, and to promote quicker reporting to the consuming public. The Board felt this is a very important and constructive undertaking, and voted to offer a sum, not to exceed \$100, to the group to assist in meeting initial expenses.

There was considerable discussion of ways and means for increasing participating interest in the Society and in reaching the predoctoral graduate student. Suggestions included wider representation on the Society's standing committees, PDI and predoctoral workshops, paper-reading sessions at APA Regional meetings, local training seminars, securing a booth at the APA meetings for display of the Journal and Distribution of membership application forms, sponsoring "Conversation Hours" at APA.

The Great Man Award was presented to Dr. Henry Murray, with a citation prepared and presented by Fred Wyatt. Dr. Murray will be asked to prepare a paper for the meeting of the Society in 1968.

The Society's President, Martin Mayman, gave the formal president's address entitled: "Early Memories and Character Structure."

Respectfully submitted,
Mary R. Haworth, Secretary

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above are correct and complete.Walter G. Klopfer,
Executive Editor**NOTICE TO AUTHORS**

Beginning with the February, 1968 issue, titles of journals in the reference list will be spelled out in full. The Journal previously abbreviated journal titles, but now will go along with the general trend in APA publications.

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